OTIS AIR FORCE BASE
Falmouth, MA

K90 FMH Tracon

Tracon Modernization

SPECIFICATIONS

for

Federal Aviation Administration
New England Region

by

FAA Technical Operations
Engineering Services
Eastern Service Area

JUNE 20, 2007

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SECTION 00800

HEALTH AND SAFETY CRITERIA

PART 1 - GENERAL

1.1 SUMMARY

A. This section describes the requirements for employee health and safety.

1.2 REFERENCES

A. The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

1. Code of Federal Regulations (CFR)
2. OSHA General Industry Safety and Health Standards (29 CFR 1910), Publication V2206
3. OSHA Construction Industry Standards (29 CFR 1926).
4. National Emission Standards for Hazardous Air Pollutants (40 CFR, Part 61).

1.3 DEFINITIONS:

A. Hazardous materials: Refer to hazardous and toxic materials/substances included in Subparts H and Z of 29 CFR 1910, and to others as additionally defined in Fed. Std. 313. Those most commonly encountered include asbestos, polychlorinated biphenyl's (PCB's), explosives, and radioactive material, but may include others.

1.4 SUBMITTALS:

A. Material Safety Data Sheets: The Contractor shall provide to the COTR the MSDS's of each material 5 calendar days before it is brought on site. The Contractor shall place all MSDS's in a binder and in an accessible location so that all employees have access to them. The binder shall be updated each time a new material is brought on site or when a material is taken off site. The Contractor shall inform the COTR when a material is brought on site or taken off site, so the COTR can update his/her MSDS file. After submission of the MSDS, no product substitution is allowed without prior approval from the COTR.

B. Safety plan: The Contractor will be required to submit his plan, **within 7 calendar days after contract award,** for maintaining a safe working environment for construction workers employed on this project. The plan shall detail work practices used to comply with health and safety requirements. This plan shall include but not limited to designating competent persons, detailing emergency plans, showing training certificates of personnel as pertaining to the work to be performed, detailing company safety programs as pertaining to the work to be

performed, showing weekly "tail gate meetings," scheduling inspections of equipment to check for potential hazards created by wear, etc. and providing a statement that the current OSHA regulations on safety in the construction industry will be followed. The plan will be used by the COTR to assure work is accomplished in accordance with accepted safety practices. The COTR may stop any operation, which is in violation of the OSHA standards and fails to comply with the safety plan or accepted safe work practices. The Contractor is responsible for obtaining safety plans from all subcontractors on this project. These safety plans must address the type of work the subcontractor will be performing and be submitted 7 calendar days before any work is to be performed by that subcontractor.

C. Accident reports: A copy of each accident report, which the Contractor or subcontractors submit to their insurance carriers, shall be forwarded through the COTR to the CO as soon as possible, but in no event later than 48 hours after the accident occurred.

D. HAZCOM Program - The Contractor shall have a hazard communications (HAZCOM) program. The Contractor and each subcontractor shall submit a copy of their HAZCOM program as well as a copy of their current OSHA 200 form, if requested. Although OSHA regulations and the Contractor's Safety Plan will usually apply, the COTR may consider certain work practices to be unsafe in accordance with Public Law 91-596, Part 5a and 5b. The CO or COTR may stop any operation that is in violation of the OSHA standards or fails to comply with the safety plan or other safe work practices.

1.5 QUALITY ASSURANCE:

A. Safety meeting: Representatives of the Contractor shall meet with the COTR prior to the start of work under this contract for the purpose of reviewing the Contractor's safety and health programs and discussing implementation of all safety and health provisions pertinent to the work to be performed under this contract. The Contractor shall be prepared to discuss, in detail, the measures he/she intends to take in order to control any unsafe or unhealthy conditions associated with the work to be performed under the contract. The attached "Maintenance Project Safety and Health Checklist" will be reviewed. If directed by the COTR, this meeting may be held in conjunction with other meetings, which are scheduled to take place prior to start of work under this contract. The Contractor's principal on-site representative, the project manager, and his/her safety representative(s) shall attend this meeting.

Safety meetings shall be held during the progression of the project. The meeting shall be held 5 calendar days before a critical phase of construction begins, as each new subcontractor is brought on site, or at the request of the COTR. At minimum the COTR, Contractor's safety representative, and any subcontractor's safety representative shall attend. These meetings are used to review the safety plans, detail work practices, and review safety equipment to be used in the next phase of the project. All persons pertinent to that discussion (i.e. fire officials, airport managers, union representatives) shall be invited.

B. Compliance with regulations: All work, including the handling of hazardous materials shall comply with applicable state and municipal safety and health requirements. Where there is a conflict between applicable regulations, the most stringent shall apply.

C. Hazardous materials: The Contractor shall bring to the attention of the COTR any material suspected of being hazardous which he/she encounters during execution of the work. A determination will be made by the COTR as to whether the Contractor shall perform tests, and/or if the material is found hazardous and additional protective measures are needed, a contract change may be required, subject to applicable provisions of this contract. All hazardous material brought to the site by the Contractor for use on the project shall be disposed of by the Contractor after its use. No hazardous material shall be left on site unless it is an integral part of the finish product or at the written request of the COTR.

D. Stop work orders: When the Contractor or his/her subcontractors are notified by the COTR of any non-compliance with the provisions of the contract and the action(s) to be taken, the Contractor shall immediately correct the unsafe or unhealthy condition. If the Contractor fails to comply promptly, all or any part of the work being performed may be stopped by the COTR with a "Notice of Non-Compliance with Safety Requirements" directive. When, in the opinion of the CO, satisfactory corrective action has been taken to correct the unsafe and unhealthy condition, a start order will be given immediately. The Contractor shall not be allowed any extension of time or compensation for damages by reason of or in connection with such work stoppage.

E Protection: The Contractor shall take all necessary precautions to prevent injury to the public, building occupants, or damage to property of others. For the purposes of this contract, the public or building occupants shall include all persons not employed by the Contractor or a subcontractor working under his/her direction.

1. Work shall not be performed in any area occupied by the public or Federal employees unless adequate steps are taken for their protection .

2. Whenever practicable, the work area shall be fenced, barricaded, or otherwise blocked off to prevent unauthorized entry into the work area.

3. Alternate precautions: When the nature of the work prevents isolation of the work area, alternate precautions such as the posting of signs, the use of signal persons, the erection of barricades or similar protection around particularly hazardous operations shall be used as appropriate.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION (Not Used)

MAINTENANCE PROJECT SAFETY AND HEALTH CHECKLIST

Purpose

This checklist is intended to be used as a tool by RE/COTRs, designated facility POCs, or SSC managers who oversee construction and maintenance activities that potentially have Occupational Safety, Health, and Environmental (OSH/E) related impacts on AT/AF operations. This tool shall be used, as appropriate, during critical phases of construction and maintenance activities (e.g. the pre-construction meeting, 30-60 days prior to commencement of work, weekly/daily construction meetings, etc.). Emphasis should be placed on using this checklist as a tool to assess as well as reassess hazards as the project progresses. Specifically, this checklist is intended to:

- Promote sensitivity to potential OSH/E hazards associated with projects and stress the importance of not disrupting NAS operations
- Assist in identifying and validating potential project hazards and associated risks
- Assist in preventing safety and health incidents/accidents and facility shutdowns
- Ensure appropriate Contractor measures and controls are in place to address potential project hazards
- Facilitate discussion with the Contractor regarding plans to prevent/minimize potential incidents/accidents
- Enhance coordination between OSH/E professionals, project personnel and Contractors
- Facilitate review of critical FAA OSH/E procedures with Contractors
- Raise OSH/E awareness

- This checklist relies on the training and professional judgment of the user. OSH/E personnel should be consulted as needed.

- A facility POC with a thorough understanding of facility procedures and equipment considerations should participate in the site walk-through.

NOTE: For small procurements (e.g. credit card purchases) and internal FAA projects (e.g. field maintenance party projects), without specifications, immediately contact the designated OSH/E professional for assistance in completing this checklist.

1 Project Summary Information

Fill in the requested site specific information.

Project Name and Description: _____

_____

_____

Project/Activity/Task: _____

Planned Start: _____

Expected Completion Date: _____

Contractor Contact: Name: _____ Phone: _____

OSH/E Contact: Name: _____ Phone: _____

Facility POC: Name: _____ Phone: _____

2 Facility Procedures

Review site specific FAA procedures and considerations with the Contractor. For example, discuss when or how during the project, emergency plans will be used/required. After the procedures have been reviewed, perform a site walk-through with the Contractor.

Facility Procedures	Reviewed?			Notes
	Yes	N/A	Not	
Asbestos Contingency Plan				
Critical Power Systems Awareness				
Lock Out/Tag Out				
Work Permits (e.g. Asbestos, Lead)				
Emergency Plans (e.g. Occupant Emergency Plan)				
Impacts to Fire Alarm and Suppression Systems				
Site Walk-Through (With Facility POC & Contractor(s))				
Hazard Communications (e.g. MSDSs)				
Other (e.g. Access/Security/Communications Equip.)				

3 Project Hazard/Risk Analysis

Think about your project and its potential hazards and risks. Consider sensitive NAS operations and all facility personnel that may be impacted by your projects. As an example: Construction activities with potential for impacting asbestos materials in or near sensitive operations could result in incidents which disrupt NAS operations. For each potential project hazard indicate (with a checkmark) a level of potential risk for exposure/release/incident.

Potential Project Hazards	Level of Potential Risk For Exposure/Release/Incident*			Notes
	High	Low	N/A	
Consider Sensitive AT/AF Operations:				
Hazardous Substances and Environmental Controls				
Asbestos (e.g. Tiles & Insulation)				
Chemical, Gas, Fumes, Dust, Radiation				
Indoor Air				
Ventilation System				
Lead-based Paint				
Electrical Power Systems				
Pressurized Equipment and Systems				
Work at Heights (>6 feet)				
Other (e.g. Confined Space)				

4 Site Safety and Health

After reviewing the potential hazards and risks in block 3, ensure that the Contractor has identified measures and controls to address applicable site safety and health risks (e.g. through discussions, available site safety plans, or other applicable documents). In your judgment, if the Contractor has appropriate measures to address the potential project hazards (see block 3), check the appropriate YES boxes below. If a potential project hazard has been identified in block 3 and no associated measures or controls are evident, then check the appropriate NO boxes below. If a NO box is checked, use the close-out date box to indicate when appropriate measures or controls have been incorporated into the Contractor's site safety and health approach.

Program Elements	Yes	N/A	No *	If No; Indicate Close-out Date	Notes
Hazardous Substances & Environmental Controls					
Asbestos					
Chemicals (e.g. Introduced to site)(Provide MSDS)					
Gas					
Fumes					
Lead Paint/Other Coatings					
Radiation and Electric Fields					
Ventilation and Exhaust Systems					
Electrical Power Systems					
Procedures for Critical Power Systems Coordination					
Provisions for GFCI					
Control of Hazardous Energy (Lockout/Tagout) (e.g. Electrical, Mechanical, Hydraulic, Thermal, Radiation)					
Pressurized Equipment and Systems					
Work at Heights (>6 feet)					
Safe Access and Fall Protection					
Work Platforms					
Floor and Wall Holes and Openings					
Personal Protective and Safety Equipment					
Fire Prevention					
Accident Prevention					
Excavations (New Construction or Tie in)					
Welding and Cutting					
Demolition of Existing Facility in Whole or Part					
Medical and First Aid Requirements					
Hand and Power Tools					
Material Handling, Storage, and Disposal					
Rigging					
Machinery and Mechanized Equipment (e.g. Equipment & Operator Certifications)					
Sanitation					
Lighting					
Concrete & Masonry Construction & Steel Erection					
Hazardous, Toxic, Radioactive Waste Activities					
Other (e.g. Noise)					

5 Review Information

The appropriate FAA point of contact and the Contractor shall sign below to document discussion of the items on this form.

Reviewed By:	Date
FAA POC: _____	
Contractor: _____	

Incident Prevention and Hazard Control Methods Discussed? **Yes** ☐ **No** ☐

This block indicates routing of this checklist for project coordination.

This form has been forwarded to:	Name	Date
SECM, OSH/E Contact:		
AF Facility Manager:		
AT Facility Manager:		
Other:		

Notes (e.g. Provide further explanation of potential hazards, locations, etc. below and attach additional sheets if necessary.)

*** END OF SECTION ***

SECTION 01110

SUMMARY OF WORK

PART 1 - GENERAL

1.1 SCOPE OF WORK

A. These Specifications together with the referenced Specifications, cover the requirements of the Federal Aviation Administration for work associated with the Falmouth TRACON modernization located at OTIS Air Force Base in Falmouth, MA.

The contractor's satisfactory execution of the contract shall include, but not be limited to the following: Demolition of the existing entrance wind block on the west elevation of the building, demolition of the concrete pads on the east elevation of the building, all site prep and installation for new concrete pad for entrance vestibule on west elevations and concrete curb around the northern half of the building. New pre-engineered vestibule with door, glazing, framing, and roof. All doweling, anchoring, and mechanical fastening, rebar and wire fabric necessary. All hot rolled and cold-formed steel framing, anchors, and insulated metal wall panels with appurtenances, trim and fasteners. All equipment material removal, relocation, new and used equipment installation/reinstallation, wall penetrations, joint sealing, pipe/conduit/cable penetrations, all required fencing and grounding replacement, roof and roof fascia reconstruction warranted by the original manufacturer's representative. Replacement or reinstallation of all lights, conduits, conduit bodies, antennas, card readers, gutter/roof drain collection boxes and down spouts, hose bibs, and associated wall-mounted equipment as indicated on the drawings. Installation of access doors/panels in the new composite wall system, as well as extensions of existing appurtenances through the new wall system as indicated on the drawings. Replacement of Building numbers painted on the side of the building.

Items marked to be removed by the contractor not specifically identified to be retained by the owner shall be disposed of by the contractor. The new insulated panels system shall be installed according to the manufacturer's installation instructions and warranted for a period of 20 years.

The contractor shall be aware that the building is adjacent to an active airfield and extra precaution shall be given to ensure that no debris of any kind be allowed on the airfield. Coordinate with 'Work Restrictions' for accessibility to the FMH TRACON.

The TRACON hours of operation are 6:00AM – 11:00 PM. The Contractor shall coordinate all construction activities with COTR so as to eliminate impacts that would adversely impact the functions of the Air Traffic Controllers. To preclude adversely effecting air traffic operations, it is anticipated that some construction activities will have to be accomplished at night, or on the weekend, or both. Night work shall be conducted from 11:00 PM – 5:00AM for specific tasks as noted on the drawings and as directed by the FAA COTR.

B. The Contractor shall provide and secure all labor, material, equipment, tools, transportation, and supplies required to complete the work in accordance with the plans, Specifications, and terms of the contract.

1.2 DIVISION OF SPECIFICATIONS:

A. These Specifications are divided for convenience into sections as set forth in the table of contents. The items of work listed under each section are given for convenience and shall not be construed as a comprehensive list of items necessary to complete the work of any section.

1.3 STANDARD REFERENCES

A. Military, Federal, and Society Institutes and Associations, standards, specifications and codes, of the issues in effect on the date of the Request for Offer, form a part of this Specification and are applicable to the extent specified in each Specification section and to the extent that they do not conflict with the International Building Code (IBC). The IBC is the basic building code for the project.

1.4 LIST OF DRAWINGS:

A. The following list of Drawings form a part of the construction requirements for this contract:

Drawing Number	Title
FMH-D-TRACON-G111	COVER SHEET
FMH-D-TRACON-G112	INDEX SHEET
FMH-D-TRACON-C104	SITE PLAN
FMH-D-TRACON-C105	CIVIL DETAILS
FMH-D-TRACON-A111	SOUTH BUILDING ELEVATION
FMH-D-TRACON-A112	EAST BUILDING ELEVATION
FMH-D-TRACON-A113	NORTH BUILDING ELEVATION
FMH-D-TRACON-A114	WEST BUILDING ELEVATION
FMH-D-TRACON-A115	ARCHITECTURAL DETAILS
FMH-D-TRACON-A116	ARCHITECTURAL DETAILS
FMH-D-TRACON-A117	ARCHITECTURAL DETAILS
FMH-D-TRACON-A118	FINISHED BUILDING ELEVATIONS

1.5 REQUIRED PERMITS:

A. See "Work Restrictions," Specification 01140

1.6 ORDER OF PRECEDENCE:

A. Coordinate work in a manner to avoid conflicts or interference between trades. Layout work in advance of installation to ascertain location of various systems and arrangement of specific

work activities. Ensure the exact locations of equipment based on actual dimensions of the items furnished.

1.7 FAA TERMINOLOGY AND DEFINITIONS

A. Federal Aviation Administration (FAA) - The terms "Federal Aviation Administration" (FAA) and "government" as used herein denotes the "owner".

B. Contracting Officer (CO) - The term "Contracting Officer" (CO) as used herein denotes the person designated to act for the FAA in the performance of this contract.

C. Contracting Officer's Technical Representative (COTR) - The term "COTR as used herein denotes the representative of the Contracting Officer at the job site. The COTR's authority is limited. These limitations are defined in the Letter of Delegation provided to the COTR and the Contractor at the preconstruction meeting.

D. Contractor/Sub-contractor - The term "Contractor" as used herein denotes the firm retained by FAA to perform and complete work required by the Contract. The term "Sub-contractor" as used herein denotes the person /firm retained by the Contractor to perform a particular unit of work required by the Contractor. Sub-contractors shall be required to meet all specifications required of the Contractor.

*** END OF SECTION ***

102FW DAY PASS REQUEST FORM

This form will be prepared to request access to the MMR (Massachusetts Military Reservation). If there is a block of individuals, they may be attached to this form, but all of the information requested must be provided. This request will not exceed 7-continuous days during a one-month period. Forms must be received NLT 1400-hours at building 753 on the preceding day for processing. FAX: 4903.

Individual's Information:

Last Name: _____ Middle Initial: _____ First Name: _____

Driver's License Number: _____ State: _____ Vehicle Make & Model: _____ Vehicle Registration: _____ Sate: _____

Date of Visit: FROM _____ TO _____

Purpose of Visit: _____

I-GATE Access Required YES: ☐ NO: ☐

If this is for a Business – Name of Company: _____

Requesting Agency Information:

Requesting Agency _____ Date of Request: _____

Unit and Squadron Assigned

Requester's Name: _____ Rank/Grade: _____

Requester's Signature: _____ Telephone: _____

**********OFFICIAL USE**********

Processed By: _____ Date: _____

Revised: 10 February 2005 (102FW/SFS/SFAP)
102FW Form XXX

Company name
Address
City, State Zip Code
Phone Number

Last Name	First Name	M Int.	Citizen ship	Soc. Sec. Number	License Number	Year	Make	Model	License Plate

SECTION 01140

WORK RESTRICTIONS

PART 1 - GENERAL

1.1 SUMMARY:

A. This section includes the restrictions that affect construction operations, the use of premises, or acceptance of existing conditions.

1.2 SITE INSPECTION

A. The Contractor shall carefully examine the premises to determine the extent of work and the conditions under which it must be done.

1.3 CONSTRUCTION LIMITS AND ACCESS:

A. The Contractor shall confine operations, activities, storage of materials and employee parking within the designated areas.

1. Personnel List: Contractor's personnel may be subject to security investigation by the FAA and the Air Force Base Security Office. The Contractor shall promptly complete all security forms provided for this purpose. Contractor shall submit a list of names, social security numbers, license numbers, and vehicle plates of all personnel that will be working on site at least two weeks prior to the start of construction. **Attached sheet shall be filled out in its entirety and submitted to the FAA two weeks prior to the start of construction. Contractor is responsible to make sure that all of his / her personnel and any subcontractors have the required passes and any other badges that they need to access the Air Force Base. The FAA will NOT be responsible for escorting contractors onto the Air Force Base.**

1.4. USE OF PREMISES

A. The Contractor shall have full use of the premises within the construction limits for the execution of work, subject to work hour restrictions as detailed below. The Contractor shall assume full responsibility for the protection and safekeeping of products stored on the site. The Contractor and his subcontractors shall maintain the job site in a neat and orderly condition. This includes the daily removal of rubbish, waste, tools, equipment, and materials not required for the work in progress. Do not disturb portions of the site beyond the areas in which the Work is indicated. Repair damage caused by construction operations. Take all precautions necessary to protect the building during the construction period and delivery. Contractor shall procure a portable toilet for his personnel for the duration of the project. Location of toilet and any other portable structures (i.e. storage trailer, field office, gang box) shall be determined by the FAA COTR on site prior to the start of construction.

1. Driveways and Entrances: Keep driveways and entrances serving the premises clear and available to the Government, the Government's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.
2. Hours of Operation: The TRACON hours of operation are 6:00AM – 11:00 PM. The Contractor shall coordinate all construction activities with COTR so as to eliminate impacts that would adversely impact the functions of the Air Traffic Controllers. Night work shall be conducted from 12 Midnight – 5:00AM as directed by the FAA COTR.

   Should increased traffic activity or adverse weather conditions require discontinuance of work that would interfere with air traffic, the Contractor will be required to stop such work promptly and remove any equipment or materials which may constitute interference.

1.6 CRANE PERMIT:

A. Any construction procedures that could require the use of cranes may pose an airspace hazard . Therefore, the Contractor shall inform the COTR of the height of proposed crane **30 calendar days** prior to locating cranes at the site. The Contractor shall submit FAA Form 7460-1, Notice of Proposed Construction or Alteration, at least **30 days** prior to the scheduled start of any crane usage. The COTR will provide a blank form to the Contractor upon his request. Any crane brought on site shall be equipped with an orange and white flag (3'x3') and a red flashing light, mounted at the end of the boom or as directed by the COTR.

1.7 TEMPORARY BARRIERS AND ENCLOSURES

A. This section covers the provision for facilities and procedures for the protection of occupants and existing buildings during construction

1. REQUIREMENTS: Care shall be exercised to protect all adjoining surfaces, equipment, utility lines, materials, and structures from damage, including damage by fire or water, and by the Contractor's operations. All work shall be performed in a safe manner and in accordance with local fire and safety regulations. Any damage to the work, or materials of others, or to other structures resulting from the Contractor's operations under this contract shall be promptly repaired or replaced at the expense of the Contractor and to the satisfaction of the Contracting Officer's Technical Representative (COTR).

2. Construct temporary barricades, walks, passageways, etc., that are necessary to protect persons and property from hazard or damage due to construction operations, and as required by State, or Federal laws, ordinances, or codes. Site safety devices shall be designed and constructed to have sufficient strength and of such materials as will accomplish their protective function. Provide warning signs, hazard and service lights, etc., as necessary for the protection of persons from injury due to construction operations.

3. PROTECTION OF FINISHED WORK: The Contractor shall be responsible for the security and protection of the work under construction and of the completed work until the Government has made final acceptance

4. FIRE PROTECTION: In addition to the requirements on the drawings and in the remainder of this Specification, the Contractor shall take necessary precautions to guard against possible fire hazards and to prevent damage to construction work, building material, equipment, storage sheds, and public and private property. The Contractor shall be responsible for providing, maintaining, and enforcing the aforementioned conditions and requirements during the entire construction period.

*** END OF SECTION ***

Please Type or Print on This Form Form Approved OMB No. 2120-0001

U.S. Department of Transportation
Federal Aviation Administration

Failure To Provide All Requested Information May Delay Processing of Your Notice

Notice of Proposed Construction or Alteration

FOR FAA USE ONLY

Aeronautical Study Number

- - -

1. Sponsor *(person, company, etc. proposing this action) :*

Attn. of: _____

Name: _____

Address: _____

_____

City: _____ State: _____ Zip: _____

Telephone: _____ Fax: _____

2. Sponsor's Representative *(if other than #1) :*

Attn. of: _____

Name: _____

Address: _____

_____

City: _____ State: _____ Zip: _____

Telephone: _____ Fax: _____

3. Notice of: ☐ New Construction ☐ Alteration ☐ Existing

4. Duration: ☐ Permanent ☐ Temporary(months, days)

5. Work Schedule: Beginning _____ End _____

6. Type: ☐ Antenna Tower ☐ Crane ☐ Building ☐ Power Line
☐ Landfill ☐ Water Tank ☐ Other _____

7. Marking/Painting and/or Lighting Preferred:

☐ Red Lights and Paint
☐ Dual - Red and Medium Intensity White
☐ White - Medium Intensity
☐ Dual - Red and High Intensity White
☐ White - High Intensity
☐ Other _____

8. FCC Antenna Structure Registration Number *(if applicable):*

_____

9. Latitude: _____ ° _____ ' _____ . _____ "

10. Longitude: _____ ° _____ ' _____ . _____ "

11. Datum: ☐ NAD 83 ☐ NAD 27 ☐ Other _____

12. Nearest: City: _____ State: _____

13. Nearest Public-use (not private-use) or Military Airport or Heliport:

_____

14. Distance from #13. to Structure:

15. Direction from #13. to Structure:

16. Site Elevation *(AMSL):* _____ ft.

17. Total Structure Height *(AGL):* _____ ft.

18. Overall height (#16. + #17.) *(AMSL):* _____ ft.

19. Previous FAA Aeronautical Study Number (if applicable):

_____ - OE

20. Description of Location: (Attach a USGS 7.5 minute Quadrangle Map with the precise site marked and any certified survey.)

21. Complete Description of Proposal:

Frequency /Power (kW)	

Notice is required by 14 Code of Federal Regulations, part 77 pursuant to 49 U.S.C., Section 44718. Persons who knowingly and willingly violate the notice requirements of part 77 are subject to a civil penalty of $1,000 per day until the notice is received, pursuant to 49 U.S.C., section 46301 (a).

I hereby certify that all of the above statements made by me are true, complete, and correct to the best of my knowledge. In addition, I agree to mark and/or light the structure in accordance with established marking and lighting standards as necessary.

Date	Typed or Printed name and Title of Person Filing Notice	Signature

FAA Form 7460-1 (2-99) Supercedes Previous Edition

NSN: 0052-00-012-0008

WORK RESTRICTIONS

SECTION 01330

SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY:

A. This section describes the requirements for submittal of shop drawings, product data, samples, warranties, certificates, test reports, operations/maintenance instructions, parts lists, as-built drawings and utility survey as required by the Contract Documents. The submittals required by this contract are further described under each individual section of this specification. This section also covers the requirements for the submission of requests for substitutes in materials and/or construction methods.

1.2 DEFINITION:

A. The term "submittal" refers to shop drawings, product data, samples, certificates, test reports, installation procedures, operation and maintenance instructions and additional data presented by the Contractor for review and approval by the Government

1.3 GENERAL REQUIREMENTS:

A. The following requirements will apply to all required submittals unless otherwise noted:

1. Where submittals show more than one item, the Contractor shall indicate by highliting, bolding, circling or by arrows, the specific item or items being submitted for review and approval.
2. Schedule: Within ten (10) days after award of contract, the Contractor shall develop for review and approval by the FAA, a list and schedule of submission for all submittals required by the various sections of this specification. Once approved, the Contractor shall maintain the status of the submittal list to track when the submittals were submitted, when returned and current status. This list is not to be considered final, the FAA can request additional submittals on materials used, components or the design. The Contractor shall also add these items to the submittal list and track their status.
3. Number of copies: Five (5) copies of each submittal (or the number of copies required by individual section) shall be submitted to the COTR. Two (2) copies will be returned to the Contractor. Should the Contractor need additional copies, he shall state the number needed and submit enough additional copies to meet this requirement.
4. Time for approval: All submittals must be approved prior to the incorporation of the materials, equipment, or technique they represent, into the work. Time necessary for Government approval or disapproval of submittals shall be 14 calendar days after

receipt of the item. After a submittal has been approved, no substitutions will be permitted without written approval by the COTR.

5. Transmittal form: When making a submittal, the Contractor shall use the form at the end of this section or the company's standard transmittal form. Submit the form in duplicate, with original signatures on both. One copy will be returned to the Contractor. Upon request by the contractor the form at the end of this section will be provided in electronic format (Excel).
6. Certification: The Contractor shall check each submittal prior to submission to the COTR for conformance to the Contract Documents. The Contractor shall certify that all contractual requirements have been met. This certification shall be written, stamped or printed on each submittal prior to submitting to COTR and shall be as follows:

   I certify that I have checked these documents and that, to the best of my knowledge, they are in complete compliance with the Contract Documents.
   Company Name_____
   Date_____By_____

7. Incomplete submittal: Should the Contractor omit items from his submittal he is not relieved from furnishing the same, even though submittal is approved by the COTR.
8. Approved as Submitted: If "Approved as Submitted" is marked by the COTR, the submittal is satisfactory. After submittal has been approved, no substitution will be permitted without written approval by the COTR.
9. Approved as Noted: If "Approved as Noted" is marked by the COTR, the submittal is satisfactory contingent upon Contractor acceptance of corrections or notations, or both and, if accepted, does not require resubmittal. After submittal has been approved, no substitutions will be permitted without written approvel by the COTR.
10. Approved as Noted, Resubmittal Required: If "Approved as Noted, Resubmittal Required" is marked by the COTR, the submittal is satisfactory contingent upon recommended corrections and must be resubmitted to the COTR within 5 calendar days for final approval.
11. Disapproved: If "Disapproved" is noted by the COTR, the submittal does not meet the contract requirements and the Contractor must resubmit within 5 calendar days. The Contractor must resubmit in the same quantity, including reproducibles, as specified in the original submittals, for approval. The COTR's approval of resubmittals will require 14 calendar days after receipt of the item. Make all corrections required by the COTR and indicate all corrections with a revision symbol and revised date. This resubmittal process shall continue until submittal has been approved.
12. Limitation of approvals: The checking, marking or approval of the shop drawings and/or product data by the COTR shall not be construed as a complete check, but will indicate only that the general method of construction and detailing is satisfactory. Approval will not relieve the Contractor of the responsibility for any error that may

exist. The Contractor is responsible for the dimensions and design of adequate connections, details, and satisfactory construction of all work.

1.4 SUBSTITUTION PROCEDURES:

A. Formal requests for substitution shall be made only when the Contractor has investigated the proposed product and has determined that it will be equal to or superior in all respects to that specified. Warranties or bonds for accepted substitutes shall be provided as they would be for the original product specified. Coordinate installation of accepted substitutes into work complete in all respects; ensure that cost data is complete including all related costs. Submit each substitution request separately, supported with the following information:

1. Complete data substantiating compliance of proposed substitution with requirements stated in Contract Documents. This shall include: product identification, including manufacturer's name and address; manufacturer's literature identifying product description, reference standards, performance and test data; samples, as applicable; names and addresses of similar projects where product has been used, and dates of installation.
2. Itemized comparison of proposed substitution with product specified, listing significant variations.
3. Data relating to changes in construction schedule and Coordination Drawings.
4. List of changes required in other work or products.
5. Accurate cost data comparing proposed substitution with product specified including any net change to contract sum.
6. Designation of required license fees or royalties.
7. Designation of availability of maintenance services, and sources of replacement materials.

B. Without a formal request from the Contractor, substitutions will not be considered for acceptance when indicated or implied on shop drawings or product data submittals, or are requested directly by a subcontractor or supplier. Acceptance may require substantial revision of contract stipulations. Do not order or install substitute products without written acceptance from the COTR.

1.5 SHOP DRAWINGS:

A. As used in this Section, shop drawings shall be defined as drawings, schedules, diagrams, and other data prepared specifically for this Contract, by the Contractor or through the Contractor by way of a subContractor, manufacturer, supplier, distributor, or other lower tier Contractor, to illustrate a portion of the work.

1. Requirements: All connections necessary to complete the work under this contract shall be detailed and completed in a satisfactory method by the Contractor. This shall apply with equal force to items not shown or specified, but necessary to make indicated or specified connections or modifications to existing work and connection for any future installation indicated on the drawings or specified. All parts detailed by

the Contractor shall be strong enough to withstand, without excessive deflection, any loads or pressures to which they are likely to be subjected to develop the strength of the members connected. In no case shall the construction be inferior in any manner to that required by the contract documents. Details shall be identified by reference to sheet and detail, schedule or room numbers shown on contract drawings. Indicate gauge or thickness, anchors and fastening types, and sizes of all items to be fabricated. Describe finish, method of application for all materials.

2. Verification: Prior to fabrication of materials, verify all field measurements and submit all shop drawings required by the technical specifications so as not to cause any delay in the work.
3. Equipment clearances: Do not proceed with any construction that may be affected in any manner by machinery and equipment until submission and approval of shop and erection drawings, schedules, and equipment layouts showing all components with dimensions and necessary clearances.
4. Related work: In indicating or describing the work and materials for related work in the submittals, the term "by others" is not acceptable. The specific installers and trades to furnish and install such related work shall be clearly noted by name or description; where such name or description is missing, it shall be understood and agreed that the Contractor is to furnish and install such related work.

1.6 SAMPLES:

A. As used in this Section, samples are defined as physical examples of products, materials, equipment, assemblies, or workmanship, physically identical to a portion of the work, illustrating a portion of the work or establishing standards for evaluating the appearance of the finished work or both. Samples of all materials to be installed in the same room shall be submitted at the same time (i.e. paint and carpet).

1. Quantities: Unless otherwise specified or directed, submit two (2) samples to the COTR.
2. Identification: Label or tag each sample or set of samples, identifying the sample's name and quality, manufacturer's name and address, brand name, catalog number, project title, Contractor's name, date, and intended use.
3. Colors, patterns and textures: For items required to be of selected and approved colors, patterns, textures, or other finish requirements, obtain instructions from the COTR and submit sufficient samples to show the range of shades, tones, values, patterns textures, or other features corresponding to the instructions. Submit color samples of field-applied paint materials.
4. Approved samples: Approved samples may be incorporated in the job if approved by the COTR. The Contractor must state his request to use a sample in the construction on the submittal transmittal form.

1.7 CATALOG DATA:

A. As used in this Section, catalog data consists of reprinted material such as illustrations, standard schedules, performance, charts, instructions, brochures, diagrams, manufacturer's

descriptive literature, catalog data, and other data to illustrate a portion of the work, but not prepared exclusively for this Contract.

1. Requirements: Furnish catalog and technical data for all products, items of machinery and equipment covered under the Contract Documents. This shall include all Contractor furnished manufactured items.
2. Preparation: All catalog data must be submitted using the following directions. Clearly mark or highlight each copy to identify pertinent products or models the Contractor intends to use. If the submittal is not clearly marked by the Contractor regarding the data indicated above, the submittal will be disapproved and returned.
3. Drawings: Catalog data submittal shall not be construed as relieving the Contractor of the responsibility for submitting complete drawings and schedules; however, standard machinery and equipment need not be detailed, but all sizes, supports, connections, and clearances shall be indicated and detailed.
4. Manufacturer's instructions: Where installation of work is required to be in accordance with the product manufacturer's directions, the Contractor shall obtain and distribute the necessary copies of the directions 7 calendar days prior to installation.

1.8 CERTIFICATES:

A. Assemble certificates of compliance, executed by each of the respective makers, suppliers, and subcontractors. Provide complete information for each item to certify compliance with contract documents: Product or work item, firm with name of principal and scope of compliance.

1.9 TEST REPORTS:

A. Promptly submit a written report of each test and inspection containing the following information:
   1. Date issued.
   2. Project title and number.
   3. Testing laboratory name, address and telephone number.
   4. Name and signature of laboratory inspector.
   5. Date and time of sampling or inspection.
   6. Record of temperature and weather conditions.
   7. Date of test.
   8. Identification of product and Specification.
   9. Location of sample or test in the project.
   10. Type of inspection test.
   11. Results of tests and compliance with Contract Document.
   12. Interpretation of test results, when requested by the COTR.

*** END OF SECTION ***

SECTION 01550

VEHICULAR ACCESS AND PARKING

PART 1 - GENERAL

1.1 SUMMARY:

A. This section covers the requirements for and procedures related to access and parking facilities required to accommodate construction and the existing Airport Traffic Control Tower facility operations and neighboring businesses during construction.

1.2 ACCESS ROADS:

A. The Contractor shall be responsible for coordinating all necessary vehicular site access with the appropriate officials. Access to the site requires traveling through US Coast Guard and Mass Air Guard Base. **The Contractor shall be responsible for coordinating all necessary site access with the appropriate officials and ensuring all contractor/subcontractor personnel comply with motor vehicle rules and regulations for operating on the base.**

1. In addition to the requirements of the FAA, the Contractor shall be responsible for the following:
   a) Provide detours as necessary for unimpeded traffic flow.
   b) Provide and maintain access to fire hydrants, free of obstructions.
   c) Provide means of removing mud from vehicle wheels before entering streets.

1.3 HAUL ROUTES:

A. The Contractor shall make his own investigation of the condition of available public thoroughfares, and of the clearance, restrictions, bridge load limits, and other limitations affecting transportation, and shall not load vehicles beyond the capacity recommended by the manufacturer of the vehicles or prescribed by an applicable State or local law or regulations.

1. The Contractor will not close any street, or otherwise interfere with traffic around the site, unless arrangements have been made through the Contracting Officer's Technical Representative (COTR) with the facility. The work performed in these areas shall be accomplished in accordance with the rules and regulations thus determined.

1.4 PARKING:

A. The Contractor shall be responsible for the following:

1. Control vehicular parking to prevent interference with public traffic and parking, access by emergency vehicles, and Owner's operations.
2. Monitor parking of construction personnel's vehicles. Maintain vehicular access to and through parking areas.
3. Prevent parking on or adjacent to access roads or in non- designated areas.

1.5 TRAFFIC CONTROL:

A. The Contractor shall be responsible to provide and maintain the following at the direction of the COTR and/or the Authority Having Jurisdiction:

1. Signs, signals, and devices.
2. Traffic cones and drums, flares and lights.

B. Provide trained and equipped flag persons to regulate traffic when construction operations or traffic encroach on public traffic lanes.

C. Use flares and lights during hours of low visibility to delineate traffic lanes and to guide traffic.

D. At approach to site and on site, install appropriate traffic signs and/or signals at crossroads, detours, parking areas, and elsewhere as needed to direct construction and affected public traffic.

E. Remove equipment and devices when no longer required.

*** END OF SECTION ***

SECTION 01740

CLEANING

PART 1 – GENERAL

1.1 SUMMARY:

A. This section covers the requirements for maintaining the site in a neat condition during construction. It also covers the requirements for final cleaning prior to final inspection by the FAA.

1.2 SITE MAINTENANCE:

A. All areas under the Contractor's control shall be maintained free of extraneous debris. Maintain site in a clean and orderly condition at all times. **Daily clean up of all debris, trash, spoil, etc, is MANDATORY**. The Contractor shall initiate and maintain a specific program to prevent accumulation of debris at the construction site, storage and parking areas, or along access roads and haul routes.

B. On-site containers for the collection of waste materials, debris, and rubbish shall be provided by the Contractor.

C. Periodic collections and disposal of debris shall be scheduled. If periodic waste collection is inadequate to prevent over accumulation, additional collections must be made. Overloading of trucks carrying disposal shall be prohibited. Rubbish transportation shall conform to local and/or state requirements.

1.3 FINAL CLEANING AND RESTORATION:

A. Final Cleaning and Restoration - Before final acceptance of the work, all debris shall be removed from the general site area. All areas disturbed by the construction activities shall be returned to their previous condition. This includes grassed or turfed areas that may have been impacted by contractor vehicles or operations, pavements, sidewalks, bollards, railings, etc.

*** END OF SECTION ***

SECTION 01770

CLOSEOUT PROCEDURES

PART 1 – GENERAL

1.1 SUMMARY:

A. This section describes the administrative procedures for final completion of work.

1.2 SUBSTANTIAL COMPLETION:

A. The FAA considers that "Substantial Completion" occurs when a high percentage of the work is complete and the project is ready for its intended use. Specifically, "Substantial Completion" has been reached when:

1. All construction as required by the contract is complete, with the exception of "punch list" items.
2. All major systems/components are work and operational
3. All Unacceptable Work Order items have been resolved.
4. All major testing has been completed and is in compliance with the contract documents.

1.3 CERTIFICATE OF COMPLETION:

A. When the Contractor considers the work as completed and ready for final inspection/acceptance by the FAA, he shall submit written certification that:

1. Contract documents have been reviewed.
2. Work has been inspected and is in compliance with contract.
3. Equipment and Systems have been tested in the presence of the Contracting Officer's technical Representative (COTR) and are operational, and required test reports have been submitted and approved.
4. Required instruction of maintenance personnel has been done.
5. Work is completed, premises cleaned and ready for inspection.
6. Operations/maintenance manuals have been submitted for approval.

B. PRELIMINARY PUNCH LIST - Submission of the Contractor's written Certificate of Completion shall initiate the COTR to conduct a preliminary inspection and furnish the Contractor a list of all discrepancies in the work, material, and equipment; noted upon preliminary inspection.

1.4 FINAL INSPECTION:

A. The COTR shall schedule the Final Inspection upon approval and endorsement of the Contractor's second Certification of Completion stating all discrepancies listed on the Preliminary Punch List have been corrected.

1.5 FINAL PUNCH LIST:

A. The COTR shall furnish the Contractor with a Final Punch List listing of all discrepancies in the work, material, and equipment noted during the Final Inspection.

1.6 ACCEPTANCE OF WORK:

A. The Contractor shall correct discrepancies noted during the Preliminary Inspection and Final Inspection, clean the premises, and notify the COTR that the work is ready for acceptance.

1. The foregoing procedures shall be repeated until the work is acceptable to the COTR.

1.7 CONTRACTOR ACCEPTANCE INSPECTION (CAI):

A. After completion of all of the Contractor's work, a CAI will be conducted between the Contractor and the FAA. The COTR will review the contract documents and verify the Contractor has completed all required work. A Joint Acceptance Inspection (JAI), which is an internal approval process within the FAA, may be held concurrently with the CAI.

*** END OF SECTION ***

SECTION 01780

CONTRACT CLOSEOUT SUBMITTALS

PART 1 - GENERAL

1.1 SUMMARY:

A. This section describes the procedures for required closeout submittals, product warranties and delivery of project as-builts.

1.2 PRODUCT WARRANTIES:

A. All warranties under this contract shall continue for a period of one (1) year from the date of final acceptance of the work, unless otherwise stated. Assemble warranties executed by each of the respective manufacturer's suppliers, and subcontractors into a warranty book, and prepare a Table of Contents, outlining the indexed pages. Two (2) original signed copies of the book are required. Each item shall contain complete information including the following:

1. Product or work item.
2. Firm, with name of principal, address, and telephone.
3. Scope and limitations.
4. Date of beginning warranty, which shall be date of final acceptance by the Government.
5. Duration of warranty. In no cases shall the warranty be less than one year from the date of final acceptance by the Government.
6. Information for owner's personnel to include proper procedure to evoke the warranty in case of failure, and for instances which might affect the validity of warranty.
7. Contractor, name or responsible principal, address and telephone number.

1.5 PROJECT RECORD DRAWINGS

A. Prior to final acceptance by the FAA, the Contractor shall furnish the COTR with "as-built" record drawings. Hand drawn mark ups are acceptable.

*** END OF SECTION ***

SECTION 02100

SITE PREPARATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and DIVISION 1 Specification Sections, apply to this Section.

1.2 SUMMARY:

A. This Section includes the following:
   1. Topsoil stripping.
   2. Removing above-grade site improvements- West Entrance Vestibule; roof, walls, slab, as indicated on the drawings.
   3. Concrete slabs/ entrance steps, around the building as indicated on the drawings
   4. Removing existing fence/posts/foundations as indicated on the drawings.

B. Related Sections include the following:
   1. Section 02200 "Earthwork" for soil materials, excavating, and backfilling.
   2. Section 02821 "Chain Link Fence" for reinstallation of facility fencing.

1.3 MATERIALS OWNERSHIP:

A. Except for materials indicated to be stockpiled or to remain Owner's property, cleared materials shall become Contractor's property and shall be removed from the site.

PART 2 – MATERIALS

2.1 SOIL MATERIALS:

A. Satisfactory Soil Materials: Requirements for satisfactory soil materials are specified in Section 02200 "Earthwork."

B. Obtain approved borrow soil materials off-site when satisfactory soil materials are not available on-site.

PART 3 - EXECUTION

3.1 PREPARATION:

A. Protect existing site improvements to remain from damage during construction.

1. Restore damaged improvements to their original condition, as acceptable to Owner.

3.2 UTILITIES:

A. Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:

1. Notify COTR not less than two days in advance of proposed utility interruptions.
2. Do not proceed with utility interruptions without COTR's written permission.

3.3 TOPSOIL STRIPPING:

A. Remove sod and grass before stripping topsoil.

B. Strip topsoil to whatever depths are encountered in a manner to prevent intermingling with underlying subsoil or other waste materials.

1. Strip surface soil of unsuitable topsoil, including trash, debris, weeds, roots, and other waste materials.

C. Stockpile topsoil materials away from edge of excavations without intermixing with subsoil. Grade and shape stockpiles to drain surface water. Cover to prevent windblown dust.

1. Limit height of topsoil stockpiles to 24 inches.
2. Do not stockpile topsoil within drip line of remaining trees.
3. Dispose of excess topsoil as specified for waste material disposal.
4. Stockpile surplus topsoil and allow for respreading deeper topsoil.

3.4 SITE IMPROVEMENTS:

A. Remove existing above- and below-grade structures as indicated and as necessary to facilitate new construction.

B. Remove slabs, paving, and aggregate base as indicated.

1. Unless existing full-depth joints coincide with line of demolition, neatly saw-cut length of existing pavement to remain before removing existing pavement. Saw-cut faces as indicated on Contract Drawings.

3.5 DISPOSAL:

A. Disposal: Remove surplus soil material, unsuitable topsoil, obstructions, demolished materials, and waste materials, including trash and debris, and legally dispose of them off Owner's property.

*** END OF SECTION ***

SECTION 02200

EARTHWORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

A. The General Conditions, Supplementary Conditions, DIVISION 1 general requirements, and other technical specifications apply to the Work specified in this Section, insofar as applicable.

1.2 DESCRIPTION:

A. This Section establishes minimum standards for excavating, filling, compacting, subgrade preparation, as necessary to properly complete the Work.

B. Without in any way limiting the scope of work, the Work includes the following:

1. Furnishing, placing, compacting and grading all materials required (i.e., structural fill, crushed gravel, etc.)
2. Compaction of slab-on-grade subgrade.
3. Protection of foundation subgrades.
4. Excavation and backfilling required for foundation elements and slabs.
5. Stockpiling suitable excess excavated material on-site. Handling and legally disposing of unsuitable and waste materials as directed by the Engineer and per Owner's contract requirements.

C. The Work of this Section shall be closely coordinated with the following Specification Sections:

1. Site Preparation: Section 02100.

1.3 JOB CONDITIONS:

A. Exercise care in excavation and grading work to prevent damage to site elements to remain. Promptly repair or cause to be repaired all damage to such items at no added cost, to the satisfaction of the Engineer and utility/service owners.

PART 2 - MATERIALS

2.1 SOIL MATERIALS:

A. Processed Gravel- The material shall conform to the requirements of M1.03.1 of the Massachusetts Highway Department Standard Specifications. The material to be

utilized shall be an inorganic, clean granular material, meeting the following gradation limits:

Sieve Size	Percent Passing by Weight
75 mm	100
37.5 mm	70-100
19.0 mm	50-85
4.75 mm	30-60
75 μm	0-10

PART 3 – EXECUTION

3.1 FILLING, BACKFILLING AND COMPACTING:

A. Remove all foreign materials and loose or soft soil materials before beginning filling operations.

B. All areas to receive fill (structural, ordinary and bedding) shall be thoroughly compacted.

C. Fill and backfill materials shall be compacted to at least 95% of the maximum density as determined by ASTM D1557, Method A (Modified Proctor Test). Adjust moisture content of fill and backfill to achieve maximum density.

D. Fill and backfill material shall be deposited in even horizontal layers between 8 and 12 inches loose measure in depth, and each layer shall be uniformly compacted by mechanical means to the criteria given above.

E. No fill or backfill material shall be placed in a frozen condition, nor shall it be placed on frozen earth.

F. Take adequate precautions to ensure that displacement of existing or new construction will not occur.

G. Responsibility for proper equipment, methods of compaction and execution of the work shall rest solely with the Contractor.

H. Backfilling for Structures:

1. Backfill all excavations resulting from the work, carrying such backfill to the required subgrade.
2. Do not commence backfilling operations until construction below finished grade has been approved, supporting structure has attained sufficient strength to bear the backfill load, forms removed and the excavations are free of trash, debris and other foreign materials.

3. Thoroughly compact natural soils sub-base. Do not deposit fill until the sub-grade has been checked and approved by the Engineer.
4. Place and compact backfill so as to minimize settlement and avoid damage to wall, utility lines and other in-place work.
5. Compaction of the structural (controlled) backfill by travel of the grading equipment will not be deemed sufficient for uniform compaction. Hand guided vibratory or tamping compactors will be required whenever controlled backfill is placed adjacent to wall, footings, columns, utility structures or in confined areas.

3.2 EXCAVATION:

A. Store all clean surplus excavated soil in covered stockpiles on-site and for possible use in backfilling the area excavated for the removal of urban fill materials or until such time as its disposal is authorized by the Engineer.

B. After all necessary fill has been placed and compacted, excavate to elevations and dimensions indicated for foundation elements, etc., with allowance for clearance required to permit erection of forms and inspection.

C. Any water or saturated earth, including ground water or rainfall, accumulated in the excavations shall be removed promptly so as to preserve the structural integrity of the soil. Provide dewatering system components, including back-up equipment, to convey water away from excavations and legally dispose of effluent.

D. Soft and saturated spots shall be removed and replaced with appropriate fill compacted to the required density.

E. Conform to profiles, elevations and dimensions required within a tolerance of plus or minus 0.10 foot.

F. Take care not to disturb the bottom of excavations. Machine excavation is not allowed within 1' of final grade. Excavate by hand to final grade. The Engineer's representative must approve the bottom of excavations placement of concrete for foundation and slab, and before fill or bedding material is placed.

G. Cold Weather Protection: Protect excavation bottoms against freezing when atmospheric temperature is less than 35°F. (1°C).

3.3 CLEAN-UP:

A. The Contractor shall leave the site in an orderly condition free of all debris and excess materials. All areas outside the construction limits which have been disturbed shall be restored to their original condition.

*** END OF SECTION ***

SECTION 02821

CHAIN LINK FENCE

PART 1 –GENERAL

1.1 SUMMARY

A. This Work shall consist of removing existing fence in proximity to Building 130 and after construction of the new exterior wall systems is complete, installing new chain link fence to the lines and grade and at the locations as shown on the Contract Drawings and in accordance with these specifications and as directed.

B. This fence will be constructed with tension wires for its full length. Chain link fence shall be constructed as shown on the Contract Drawings.

1.2 RELATED DOCUMENTS:

A. The General Conditions, Supplementary Conditions, DIVISION 1 general requirements, and other technical specifications apply to the Work specified in this Section, insofar as applicable.

B. Coordinate work with that of all other trades affecting, or affected by Work of this Section. Cooperate with such trades to assure the steady progress of all Project work.

1.3 SUBMITTALS:

A. On Shop Drawings show locations of fence, each gate, posts, rails, hardware, and accessories. Indicate materials, dimensions, sizes, weights, and finishes of components. Include plans, elevations, sections, and other required installation and operational clearances, and details of post anchorage and attachment and bracing.

PART 2 –PRODUCTS

2.1 GENERAL:

A. All material used in construction shall conform to the applicable sections of AASHTO M181. All material shall be new and undamaged when installed. Imperfectly coated materials will be rejected.

B. All hardware and miscellaneous fittings,including but not limited to, posts, rails, rail splices, post connection clamps, expansion sleeves, stretcher bars and bands, wire fastener, tension wire, and post caps shall be hot-dipped galvanized steel, (AASHTO Type I).

2.2 FENCE FABRIC:

A. Standard chain link fence fabric shall be 9-gage wire with a two inch mesh weave. The fabric shall be of the height shown on the Contract Drawings.

B. Standard chain link fence fabric shall be aluminum coated steel wire with barbed bottom selvage and knuckled top selvage conforming to AASHTO M181, Type II.

2.3 WIRE STRANDS:

A. Have 3 strands of 12 gauge barbed wire with 4-point barbs spaced 4" apart and stretched taut betwen support arms.

B. The top strand of barbed wire shall be 12" above and parallel to the fence line, with the remaining 2 strands spaced uniformly between the top of the fence fabric adn the highest strand.

2.4 POSTS:

A. All chain link fence posts shall be protected with a zinc coating by the hot-dipped galvanizing method as specified for Type I, Grade 1 posts in AASHTO M181.

B. Steel line posts for fence more than 5 feet in height shall be 1.95 inch by 2.25 inch "H" column with a nominal weight of 4.1 pounds per lineal foot. Posts shall be shall be commercial quality or better weldable steel.

C. End, corner and brace posts for fence over 5 feet in height shall be 2-7/8 inch O.D. pipe with a nominal weight of 5.79 pounds per lineal foot; for fences 5 feet or less in height posts shall be 2-3/8 inch O.D. pipe with a nominal weight of 3.65 pounds per lineal foot. All pipe posts shall be fitted with an approved cap, designed to fit securely inside the posts. All pipe posts that carry a top rail or cable fitting shall be fitted with an approved top, designed to fit securely over the posts and carry the top rail or cable. The base of the top fitting shall carry an apron around the outside of the post.

D. End, corner and brace posts shall conform to ASTM A120, Schedule 40.

2.5 FASTENERS AND TENSION WIRE:

A. Post clips shall be 0.192 inch steel wire.

B. Bottom and top tension wires shall be coil spring steel, 0.177 inch diameter, and have a minimum tensile strength of 80,000 pounds per square inch conforming to AASHTO M181 Type I Class 3.

C. Tie wire shall be aluminum alloy, 0.148 inch diameter;

D. Wire fasteners 0.120 inch diameter.

2.6 BRACE RAILS AND TRUSS RODS:

A. Brace rails shall be tubular pipe 1.66 inch O.D. nominal weight 2.27 pounds per lineal foot. Couples and extension sleeves shall be outside sleeve type at least 6 inches long.

B. Tension truss rods shall be 3/8 inch round rods with drop forged turn-buckles, or other approved type of adjustment.

2.7 STRETCHER BAR BANDS AND STRETCHER BARS:

A. Stretcher Bar bands shall be not less than 1/8-inch by 3/4-inch in section at 12-inch on center maximum spacing.

B. Stretcher bars shall be not less than 1/4-inch by 1 inch in section and shall be 1 inch less than the full height of the fabric with which they are to be used.

2.8 CEMENT CONCRETE

A. Concrete for bases shall be 3000 psi - 1 1/2" concrete.

PART 3 – EXECUTION

3.1- GENERAL

A. Chain link fence shall be constructed with continuous top and bottom tension wire for its full length.

3.2 POSTS

A. The posts shall be set true to the line and grade as shown on the Contract Drawings.

B. The distance between posts as measured from center to center shall not be more than that set forth in the following table:

Curvature of Installation	Maximum Post Spacing in Feet
From tangent to 500 foot radius	10
Less than 500 foot radius to 200 foot radius	8
Less than 200 foot radius to 100 foot radius	6
Less than 100 foot radius	5

1. Brace posts shall be required as follows:
   a. At 500 foot maximum intervals.
   b. Where the change in grade between any three posts exceed 15 percent.

2. End, corner and brace posts shall be braced as shown on the Contract Drawings. Changes in line of 30 degrees or more shall be considered as corners.

3. After the post is set and plumbed, the hole shall be filled with grout consisting of one part Portland cement and one part clean, well graded sand. The grout shall be thoroughly worked into the hole so as to leave no voids. Where posts are set in the above manner, concrete footings will not be required.

3.3 POSTS SET IN CONCRETE:

A. Posts shall be set in concrete bases as depicted on the Contract Drawings. Top of base shall be crowned to shed water. Post shall have minimum embedment depth into concrete of 36".

3.4 ERECTION:

A. All end and corner posts, posts at each end of curves, and brace posts shall be braced with horizontal braces and diagonal truss rods. End post braces shall extend over one adjacent panel; other posts shall be braced the distance of one panel on each side.

B. Fittings of approved design shall be used to fasten the braces to the posts.

C. Top rails, where required, shall pass through post caps, and shall be securely fastened to all end, corner and brace posts.

D. Tension wires shall be placed ten (10) inches ± from the top and bottom of the line, corner, end and brace posts. The tension wire shall be fastened to each line post with 0.148 inch diameter tie wires or steel clips.

E. The tension wires shall be fastened to end, corner and brace posts with an end band and a minimum of five (5) turns around the tension wire to end the installation. One continuous length of tension wire shall be used between brace posts.

F. Sufficient tension shall be applied to create a tension in the wire so that no sag is visible. On completion of the installation, the fence fabric shall be attached to the tension wire with wire fasteners (hog rings) of 0.120 inch diameter placed every twelve (12) inches ± top and bottom.

G. Chain link fabric shall be placed on the side face of the post away from the perimeter road unless otherwise designated by the Engineer.

H. The chain link fabric shall be placed approximately 2 inches above the ground and on a straight grade between posts.

I. The fabric shall be stretched taut and securely fastened to the posts. Stretching by motor vehicle will not be permitted. Fastening to end, corner and brace posts shall be with stretcher bars and fabric bands spaced at one foot intervals. The fabric shall be cut and each span attached independently at all brace and corner posts. Fastening to post, top rail, top tension cable or tension wire shall be with wire, metal bands, wire fasteners, or by other approved method.

J. Rolls of wire fabric shall be joined by weaving a single strand into the ends of the rolls to form a continuous mesh.

3.5 TOUCH-UP REPAIR WORK:

A. Remove and replace fencing which is improperly located or is not true to line, grade and plumb.

B. Repair all damage to coated surfaces in accordance with the recommendations of the fence manufacturer subject to the approval of the Engineer.

*** END OF SECTION ***

SECTION 03300

CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specifications sections, apply to work of this section.

1.2 SUMMARY

A. Work includes, but shall not be limited to, the following:

1. Plant mixed concrete.
2. Formwork.
3. Reinforcing.
4. Admixtures.
5. Anchors and accessories.
6. Surface finishing and treatment.
7. All concrete embedded items.
8. Grouting.
9. Setting of anchor bolts.

B. Work further includes setting of items encased in concrete, as shown on the drawings and specified in other sections of the specifications.

C. Related work specified elsewhere:

1. Section 02200 - Earthwork

1.3 REFERENCES

A. Unless noted otherwise, the latest edition/revision of the following publications, in effect as of the date of these Documents, form part of these Specifications to the extent referenced:

1. ACI 211.1 Standard Practice for Selecting Proportions for Normal, Heavy Weight and Mass Concrete.
2. ACI 214 Recommended Practice for Evaluation of Compression Test

		Results of Concrete.
3.	ACI 304R	Guide For Measuring, Mixing, Transporting and Placing Concrete.
4.	ACI 304.2R	Placing Concrete by Pumping.
5.	ACI 305R	Hot Weather Concreting.
6.	ACI 306R	Cold Weather Concreting.
7.	ACI 315	Details and Detailing of Concrete Reinforcement.
8.	ACI 318	Building Code Requirements for Reinforced Concrete.
9.	ACI 347	Recommended Practice for Concrete Formwork.
10.	CRSI	Manual of Standard Practice.
11.	ASTM A184	Fabricated Deformed Steel Bar or Rod Mats for Concrete Reinforcement.
12.	ASTM A185	Welded Steel Wire Fabric for Concrete Reinforcement.
13.	ASTM A615	Deformed and Plain Billet-Steel Bars for Concrete Reinforcement.
14.	ASTM C33	Concrete Aggregates.
15.	ASTM C39	Compressive Strength of Cylindrical Concrete Specimens.
16.	ASTM C94	Ready-Mixed Concrete.
17.	ASTM C138	Unit Weight, Yield, and Air Content (Gravimetric) of Concrete.
18.	ASTM C143	Slump of Portland Cement Concrete.
19.	ASTM C150	Portland Cement.
20.	ASTM C172	Sampling Freshly Mixed Concrete.
21.	ASTM C173	Air Content of Freshly Mixed Concrete by the Volumetric Method.
22.	ASTM C231	Air Content of Freshly Mixed Concrete by the Pressure Method.
23.	ASTM C260	Air-Entraining Admixtures for Concrete.

24. ASTM C309 Liquid Membrane-Forming Compounds for Curing Concrete.

25. ASTM C494 Chemical Admixtures for Concrete.

26. ASTM C618 Fly Ash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Portland Cement Concrete. Concrete.

1.4 SUBMITTALS

A. Submit in accordance with Conditions of the Contract and Division 1 - General Requirements:

1. Product Data: Manufacturer's printed product literature, including installation instructions of all materials listed under Part 2, Products.

2. Concrete Mix Design: Copies of certified laboratory test reports, including all test data for materials used, such as cement, aggregate, admixtures, and curing compound proposed for use in this project.

a. Submit Mix Design for each strength and type of concrete.

b. Specify as to where each type of concrete shall be used.

c. Submit Mix Designs as soon as Notification to Proceed is issued or no later than one month prior to placing of concrete.

3. Shop drawings:

a. Reinforcement fabrication and placing drawing for all reinforcing steel conforming to the ACI 315 - Manual of Standard Practice for Detailing Reinforced Concrete Structures.

4. Mill test report for reinforcing steel attesting conformance with the specifications.

5. Welding Certificates: Copies of certificates for welding procedures and personnel-as required by the COTR.

6. Material Certificates: Signed by manufacturers certifying that each of the following items complies with requirements:

a. Cementitious materials and aggregates.

b. Form materials and for-release agents.

c. Admixtures.

d. Curing materials.

e. Floor and slab treatments.

f. Bonding agents.

g. Vapor retarders.

h. Epoxy joint filler.

i. Joint-filler strips.

j. Repair materials.

1.5 QUALITY ASSURANCE

A. Comply with all the requirements of ACI 301 - Specifications for Structural Concrete for Buildings, unless noted otherwise on the drawings and in these Specifications.

B. Cooperate with testing laboratory personnel engaged and paid for by the FAA, provide access to the site and batch plant operations. Provide and deliver to laboratory adequate quantities of material samples that need to be tested.

1. Testing agency will be responsible for conducting and interpreting tests, stating in each report whether or not test specimens conform to the requirements of the Contract Documents, specifically noting any deviation therefrom.

C. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products complying with ASTM C94 requirements for production facilities and equipment.

1. Manufacturer must be certified according to the National Ready-Mixed Concrete Association's Certification of Ready-Mixed Concrete Production Facilities.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver, handle, and store materials at the jobsite in a manner to prevent damage.

1. Do not deliver concrete to site until all forms, reinforcing, embedded items, etc. are in place.

B. Packaged material shall be in original containers with seals unbroken and labels intact until time of use. Wrapped or bundled material shall bear the name of the manufacturer and the product.

C. All damaged or otherwise unsuitable material, when so ascertained, shall be immediately removed from the site.

PART 2 - PRODUCTS

2.1 FORMING MATERIALS

A. Formwork Sheathing:

1. Finish No. 1 (concealed below grade concrete or exposed in utility areas): 3/4 inch, exterior plywood, APA B-B plyform Class I or II, PS-1.

B. Form Coating: Non-staining, free of oil and wax, will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces.

C. Form Ties:

1. For Finish No. 1: Snap-in type with no metal closer than 1 inch to the surface of concrete.

D. Chamfer Strip: PVC or extruded neoprene chamfer strips Type CSN (Vinylex Corp.) or No. 612 (Greenstreak).

2.2 REINFORCING MATERIALS

A. Reinforcing Bars: New billet steel bars, ASTM A615, Grade 60, deformed.

B. Welded Wire Fabric: ASTM A185 furnished in sheets. Provide galvanized fabric where noted.

C. Accessories: Bolsters, chairs, spacers and other devices for spacing, supporting and fastening reinforcing bars and welded wire fabric in place. Use wire-bar-type supports complying with CRSI specifications.

1. For slabs-on-grade, use supports with sand plates or horizontal runners where base material will not support chair legs.

2. For exposed-to-view concrete surfaces, where legs of supports are in contact with forms, provide supports with legs that are plastic protected (CRSI, Class 1) or stainless steel protected (CRSI, Class 2).

2.03 CONCRETE MATERIALS

A. Portland Cement: ASTM C150, Type I, normal, grey cement for general use.

B. Aggregates for Normal Weight Concrete: Comply with ASTM C33.

1. Fine aggregates: Natural bank or river sand, washed and screened, unless noted otherwise for textured architectural concrete.

2. Coarse aggregates: Crushed stone or gravel, No. 57 for normal concrete.

C. Water: Potable

D. Admixtures: Containing not more than 0.1% chloride ions. Provide quantities as recommended by ACI Guide Specifications.

1. Water Reducing: ASTM C494, Type A, for use in all concrete.

2. Air-Entraining: ASTM C260, for use in all concrete exposed to the elements.

3. Use the following admixtures only when permitted by the FAA Resident Engineer and concrete mix has been adjusted and resubmitted for approval.

a. High-Range Water Reducing Admixture (Super-Plasticizer): ASTM C494, Type F or G.

b. Water-Reducing, Retarding Admixture: ASTM C494, Type D.

c. Water-Reducing, Accelerating Admixture: ASTM C494, Type E.

E. Calcium chloride or admixtures containing chloride salts shall not be used.

2.4 RELATED MATERIALS

A. Concrete Curing and Surface Sealing:

1. Liquid Membrane-Forming Curing Compound: ASTM C309, Type I, Class B, clear for interior and exterior surface application, guaranteed not to affect the bond of finishes specified. Confirm compatibility before use.

2. Liquid Membrane-Forming Curing and Sealing Compound: ASTM C309, Type I, Class B, with minimum 18% solids for surfaces to remain exposed.

3. Moisture Retaining Cover Curing: ASTM C171, polyethylene-coated burlap for moisture curing surfaces.

a. In cold weather cover burlap with additional insulated blankets.

4. Surface sealer: "Seal Hard" by L & M Chemical Inc.

B. Surface Treatment:

1. Chemical Hardener: 100% active siliconate chemicals used with moisture curing of concrete surfaces.

2. Dry-Shake Hardener: Dry mixture of graded emery/corundum, aluminum oxide and iron oxide.

3. Non-Slip Hardener: Dry shake emery aggregate, "Grip It" by L & M Chemical Inc. or "Frictex" by Sonneborn ChemRex Inc.

C. Patching and Repairing Compound: Polymer modified cementitious mortar blended to produce color and texture of adjacent concrete surfaces.

D. Grout: Non-shrink, factory pre-mixed, conforming with ASTM C1107, non-metallic, minimum compressive strength of 10,000 psi in 28 days when installed dry-pack.

E. Expansion Joint Filler: Closed cell polyethylene sheets, water and moisture resistant, passing ASTM D1056 and D1564 test requirements, with minimum 95% recovery rate.

F. Bonding Agent: For bonding new concrete to existing cured concrete or for patching and repairing concrete surfaces. Epoxy type, 100% solid, for dry or damp surfaces.

G. Anchor Bolts: Refer to notes on the drawings.

H. Vapor Barrier: Fiber mesh reinforced, polyethylene sandwich film, puncture resistant, complying with moisture vapor transmission of less than 0.09 perms when tested in accordance with ASTM E procedure A. Provide tape recommended by manufacturer to seal joints.

2.5 CONCRETE MIX

A. Provide Ready-Mixed Concrete batched, mixed, and transported to the site in accordance with ASTM C94. In conflict between referenced standard and project specifications, notify Resident Engineer immediately.

1. Design mix using one of the methods specified in ACI 301.

2. Use water reducing admixture in all concrete.

3. Use air-entraining in all exterior exposed concrete.

4. Do not proceed with concrete placement until Resident Engineer's approval of mix design and test results.

5. Notify Resident Engineer of any changes in mix design; do not proceed with use of modified mix design prior to approval of the Resident Engineer.

B. Slump: Maximum 4 inches at the site for normal concrete.

1. Slump for concrete containing high-range water-reducing admixture: 8 inches after admixture is added to concrete with 2 to 4 inches slump.

C. For use of admixtures other than water reducing and air-entraining, obtain approval of the Resident Engineer.

D. Concrete Strength: Unless otherwise noted on the Drawings, all concrete shall attain 4,000 psi strength in 28 days.

PART 3 - EXECUTION

3.1 GENERAL

A. Comply with the requirements of ACI 301, "Specifications for Structural Concrete for Buildings."

3.2 FORMWORK

A. Comply with the recommendations of ACI 347R, "Guide to Formwork for Concrete."

1. Form to shapes, lines, and dimensions shown on the drawings.

2. Design to resist the pressure and weight of concrete by providing adequate shoring and bracing.

3. Survey completed formwork before and during placement of concrete to ensure compliance to lines and levels shown on the drawings. Adjust formwork as necessary.

4. Do not use excavated trenches as footing formwork. Form all footings and foundation.

B. Use selected materials to obtain required finishes. Solidly butt joints and provide backup at joints to prevent leakage of cement paste.

C. Provide chamfers at exposed corners and edges as indicated.

D. Provide openings and coordinate the installation of inserts required by other trades in the concrete formwork.

E. Apply form release oil to formwork prior to installing reinforcing.

F. Form Removal:

1. Formwork for columns, walls, sides of beams and other parts not supporting the weight of the concrete may be removed not earlier than 24 hours after placing concrete, unless otherwise instructed by the Resident Engineer.

2. Formwork for primary structural members may be removed when test of field cured cylinders reach 75% of the 28 day design compressive strength, provided reshoring has been used.

3. Reshore structural members due to design requirements or construction conditions to permit successive construction.

4. Remove formwork progressively so no unbalanced loads are imposed on the structure.

3.3 PLACING REINFORCING

A. Place all reinforcing bars in accordance with CRSI "Manual of Practice" and approved shop drawings.

1. Use sufficient bar supports, ties, anchors, additional reinforcing bars if required and other accessories to hold all bars securely in place.

2. Reinforcing bars shall be cleaned of oil, grease, dirt, or other foreign matter that will impair bond with concrete.

3. Do not float reinforcing into place.

B. Place bars to the tolerances of ACI 318.

C. Do not heat, bend or cut bars in the field.

D. Do not tack weld reinforcing bars, nor field weld accessories of any kind to reinforcing bars.

F. Make splices in reinforcing bars only when necessary, but only at points of minimum tensile stress. Make all splices by lapping bars in accordance with ACI 315 and 318.

G. Slabs on Grade: Place reinforcing fabric as shown on the drawings, or where not shown, one-fifth of the slab thickness plus 1/4 in. from the top of finished slab. Lap fabric 6 in. all around and wire together not over 4 ft. apart.

1. Place vapor barrier first, then carefully place reinforcing over vapor barrier. Do not punch, tear, or destroy vapor barrier during the placement of reinforcing.

H. Structural Slabs: Install reinforcing as shown on shop drawings:

1. Reinforcing Fabric: Lap adjoining pieces a minimum of one full mesh and tie splices with tie wire spaced 18 in. o. c.

2. Reinforcing Bars: Avoid splices midway between supporting beams or directly over beams of continuous structures.

3. Offset laps in adjacent widths to prevent continuous laps.

3.4 CONCRETE PLACEMENT

A. Inspect formwork, reinforcing steel and items to be embedded or cast in. Notify other crafts to permit installation of their work.

B. Notify Resident Engineer 48 hours prior to placing concrete.

C. Placement:

1. Comply with the guidelines of ACI 304R "Guide for Measuring, Mixing,

Transporting and Placing Concrete."

2. Thoroughly mix concrete prior to placing, and in no case more than 90 minutes after initial mixing, when concrete temperature at discharge time is no more than 85°F. When concrete temperature exceeds 85°F, then place concrete in no more than 45 minutes.

3. Retempering will not be allowed.

4. Do not allow concrete to free fall more than 2 feet.

5. Once started, place concrete continuously between predetermined construction joints. Continue placing until panel or section is completed; keep top surfaces level. (Do not break or interrupt successive pours so that cold joints occur.)

6. Deposit concrete in uniform horizontal layers.

7. Consolidate each layer of deposited concrete with internal vibrators immediately after placing. Avoid over-vibrating which will result in segregation of the concrete mixture.

   a. Slabs less than 4 in. thick need not be vibrated.
   b. Do not use vibrators to move concrete within formwork.

D. Weather Conditions:

1. Concrete temperature when deposited: Minimum 50°F; maximum 85°F.

2. Cold weather concreting. Comply with ACI 306 except as follows:

   a. In freezing weather, provide suitable means for maintaining concrete temperature at a minimum of 70°F for three days, or 50°F for five days after placing.
   b. Cooling of concrete to outside temperature: Not faster than 1°F per hour for first day and 2°F per hour thereafter until outside temperature is reached.
   c. Maximum temperature of concrete produced with heated aggregate, heated water, or both at any time during its production or transportation: 90°F.

3. Hot weather concreting. Comply with ACI 305.

4. Do not mix salt, chemicals or other foreign materials in concrete to prevent freezing or to accelerate hardening of concrete. Coordinate with "Admixtures" Section of these Specifications. Obtain approval of Resident Engineer, in writing, prior to use of such admixtures.

E. Slabs on Aggregate Base:

1. Provide aggregate base as shown on the drawings and specified in Section 02200 - Earthwork.

2. Install insulation, vapor barrier, reinforcement, and embedded items as specified.

   a. Use greatest possible widths of vapor barrier in order to eliminate joints.

   b. Joints between vapor barrier sheets shall be lapped and sealed as recommended by the manufacturer.

   c. Install perimeter insulation and hold in place by using adhesive or anchors as recommended by the manufacturer.

   d. Install and secure all items that will be encased in concrete prior to placing concrete.

3. Provide wood runways for wheeled equipment for transporting concrete over in-place construction.

4. Place concrete for all slabs continuously between construction joints. If slab is more than 4 in. thick, consolidate by vibration. Bring to correct level with a straight edge and strike off. Use bull floats or darbies to force coarse aggregate down and to produce a smooth surface, free from humps and hollows.

5. Pitch to drains in accordance with elevations shown on plans.

3.5 FINISHES

A. Formed Surfaces: Remove forms and form ties. Patch in accordance with ACI 301, and as described in parag. "Patching of Concrete Surfaces" in these specifications, and finish as follows:

1. Finish No. 1 (concealed, below-grade concrete): For below-grade concrete surfaces not exposed to view such as foundation walls, grade beams and footings against which backfill is placed. Certain rough and irregular finishes will be acceptable. Leave texture imparted by the forms, except repair defective surfaces.

2. Finish No. 2 (exposed, above-grade concrete): For exposed, above-grade concrete surfaces other than Finish No. 3, such as walls, columns and beams. Remove by grinding or other acceptable means all fins and protrusions, as well as rough and irregular surfaces. Patch all form tie holes and defective surfaces to match adjacent surfaces.

B. Formed Concrete Surfaces Finish Schedule:

1. Finish No. 1:

C. Slabs: Provide level slabs except where otherwise indicated on drawings: Pitch slab surface to drains as indicated.

1. Power float all interior slabs. Hand float exterior surfaces where specified for certain finishes.

2. Perform additional finishing, including brooming, flushing and steel trowelling as specified.

3. When steel trowel finish is specified, provide power and/or hand trowelling.

4. Sprinkling of dry cement or a mixture of dry cement and sand on the surface of the fresh concrete to absorb water or to stiffen the mix will not be permitted.

5. Finishes:

a. Finish "A" (for exposed concrete floors that will remain exposed, receive finished flooring, special coatings, paint or sealer): Finish with a steel trowel. Use final hand trowelling to remove slight imperfections left by trowelling machines and to bring surface to a dense, smooth polished final finish. Continue hand trowelling until a ringing sound is heard as the trowel passes over the surface. Finish to Class A tolerance per ACI 301.

b. Finish "B" (interior or exterior ramps, exterior slabs, platforms and steps): Trowel to a smooth, dense surface. Finish with a fine-hair push broom, perpendicular to the direction of pedestrian or vehicular traffic, Class B tolerance per ACI 301.

D. Slab Surfaces Concrete Finishes Schedule:

1. Finish “A”:

2. Finish “B”:

3.6 CURING AND PROTECTION

A. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures and mechanical injury.

B. Cure concrete following the recommendations of ACI 301 and 308, "Standard Practice for Curing Concrete".

C. Where liquid membrane curing compound is used, adhere strictly to manufacturer's installation instructions. Curing compound must be compatible with concrete surface finish materials.

3.7 PATCHING OF CONCRETE SURFACES

A. Formed surfaces: Patch all form-tie holes, honeycombs and other imperfections immediately after removing forms while concrete is still green, as follows:

1. Finish No. 1 (Concealed Below Grade Concrete): Patch all form tie holes, aggregate pockets, honeycomb and defective areas as required with patching and surfacing compound.

2. Finish No. 2 (Exposed Above Grade Concrete): Patch form tie holes, aggregate pockets, honeycomb and other defective areas with patching and surfacing compound, mixing white or normal cement as necessary to match existing surface color as closely as possible. Remove all fins, form joint marks, rough spots and other defects by rubbing with a carborundum stone until these defects and rough areas are completely removed and surfaces are free from imperfections so as to produce dense, smooth, uniform finish.

B. Patching all other concrete surfaces that require extensive building up shall be as follows:

1. Concrete patching, when necessary to obtain the required profiles, lines or levels, shall be subject to Resident Engineer's approval and shall utilize the specified bonding agents and/or patching and surfacing compound.

2. Prior to application of bonding agent, or patching and surfacing compound, remove all dust, dirt, grease, oil, wax or loose material from surfaces to be repaired. Apply material in accordance with manufacturer's printed instructions.

3. Build-up patching to match appearance of surrounding exposed concrete surfaces.

a. For patching concrete surfaces 1 in. and less in depth, use patching and surfacing compound only.

b. For patching concrete surfaces over 1 in. deep, apply bonding agent first to surfaces to be patched immediately before using patching and surfacing compound.

c. Cure all patching in accordance with the manufacturer's instructions.

3.8 GROUT

A. Mix, place and cure grout in strict accord with manufacturer's instructions.

3.9 FIELD QUALITY CONTROL - INSPECTIONS AND TESTS

A. The Contractor shall engage a testing laboratory to perform the following inspections and tests in accordance with ACI 301.

1. Compression strength test for each 50 cu. yds. of concrete, or fraction thereof, on specimens taken at point of discharge from the truck immediately before placing of each design mix daily. Test specimens will be obtained consisting of four standard 6 in. x 12 in. cylinders in accordance with ASTM C172 and ASTM C39. Two cylinders will be tested at seven days, the other two at 28 days. The complete test set will be picked up in 24 hours after casting and taken to the laboratory for further curing and testing.

2. Three additional cylinders will be taken during a placement that requires temporary heating. These cylinders will be left in the enclosure in the same environment as concrete placed. One cylinder will be tested at three days, one at seven days, the third at 28 days to verify adequacy of temporary heating system.

3. Slump test will be performed in accordance with ASTM C143, with one test made for each 25 cu. yds. of concrete, or fraction thereof.

4. Air entrainment tests will be performed in accordance with ASTM C173 or C231, with one test made for each 25 cu. yds. of concrete, or fraction thereof.

5. When tests indicate concrete strength below that specified, improper slump or air entrainment, or when visual defects indicate poor quality concrete has been placed, Resident Engineer will immediately notify Contractor. Contractor may, at his own expense, have additional tests made; including compression tests on cored cylinders in accordance with ACI 318. Resident Engineer will order the removal of all non-conforming or defective concrete, and its replacement with concrete meeting project specifications.

6. If mix design is found to be defective, modify mix, subject to Resident Engineer's approval, until satisfactory concrete is obtained.

B. Test results will be reported in writing to Resident Engineer, Ready-Mix Producer, and Contractor within 24 hours after tests.

1. The following information in the report will be included:
   a. Compressive strength tests
   b. Project identification
   c. Date of concrete placement
   d. Location concrete placed
   e. Design compressive strength specified
   f. Concrete mix identification

END OF SECTION

SECTION 05400

COLD-FORMED METAL FRAMING

PART 1 GENERAL

1.1 APPLICABLE PUBLICATIONS:

A. American Iron and Steel Institute (AISI)

1. AISI SG-973 (2002) Cold-Formed Steel Design Manual

2. AISI SG02-1 (2001) North American Specification for the Design of Cold-Formed Steel Structural Members

B. American Welding Society (AWS)

1. (1998) Structural Welding Code - Sheet Steel

C. ASTM International (ASTM)

1. ASTM A 1008/A 1008M (2006a) Steel Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low Alloy with Improved Formability, Solution Hardened, and Bake Hardenable

2. ASTM A 1011/A 1011M (2006b) Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength

3. ASTM A 123/A 123M (2002) Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products

4. ASTM A 153/A 153 M (2005) Zinc Coating (Hot-Dip) on Iron and Steel Hardware

5. ASTM A 370 (2006) Mechanical Testing of Steel Products

6. ASTM A 653/ A 653 M (2006a) Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process

7. ASTM B 633 (1998el) Electrodeposited Coatings of Zinc on Iron and Steel.

8. ASTM C 955 (2006) Load-Bearing (Transverse and Axial) Steel Studs, Runners (Tracks), and Bracing or Bridging for Screw Application of Gypsum Panel Products and Metal Plaster Bases.

9. ASTM E 329 (2005b) Agencies Engaged in the Testing and/or Inspection of Materials Used in Construction.

D. Society of Automotive Engineers International (SAE)

1. SAE J78 (1998) Steel Self Drilling Tapping Screws

E. The Society for Protective Coatings (SSPC)

1. SSPC Paint 25 (1997; E 2004) Zinc Oxide, Alkyd, Linseed Oil Primer for Use over Hand Cleaned Steel, Type I and Type II.

1.2 SUBMITTALS

A. Submit in accordance with Conditions of the Contract and Division 1 – General Requirements:

1. Shop Drawings: Framing Components
   a. Cross-Sections, plans and/or elevations showing component types and locations for each framing application; including shop coatings and material thicknesses for each framing component.
   b. Framing Details showing Fastener Type, quantity, location, and other information to assure proper installation.
   c. Drawings depicting panel configuration, dimensions, components, locations, and construction sequence if the Contractor elects to install prefabricated/prefinished frames.

2. Product Data
   a. Steel Studs, tracks, bracing, bridging, fasteners, and accessories.

3. Mill Certificates or test reports from independent testing agency, qualified in accordance with ASTM E 329, showing that the steel sheet used in the manufacture of each cold-formed component complies with the minimum yield strengths and uncoated steel thickness specified.

1.3 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to job site and store in adequately ventilated, dry locations. Storage area shall permit easy access for inspection and handling. If necessary to store materials outside, stack off the ground, support on a level platform, and protect from the weather as approved. Handle materials to prevent damage. Finish of the framing

members shall be maintained at all times, using an approved high zinc dust content, galvanized repair paint whenever necessary to prevent the formation of rust. Replace damaged items with new, as directed by the COTR.

1.3 LOAD-BEARING COLD-FORMED METAL FRAMING

A. Include top and bottom tracks, bracing, fastenings, and other accessories necessary for complete installation. Framing members shall have the structural properties indicated. Where physical structural properties are not indicated, they shall be as necessary to withstand all imposed loads.

PART 2 PRODUCTS

2.1 STEEL STUDS, TRACKS, BRACING, BRIDGING AND ACCESSORIES

A. Framing components shall comply with ASTM C 955 and the following:

1. Studs and Joists of 16 Gage (0.0598 Inch) and Heavier
   a. Galvanized steel, ASTM A653, SS Grade 50, G90

2. Studs and Joists of 18 Gage (0.0478 Inch) and Lighter
   a. Studs and Joists of 18 Gage (0.0478 Inch) and Lighter, Track, and Accessories (All Gages): Galvanized Steel, ASTM A 653/A653M, SS, Grade Grade 50, G60.

2.2 MARKINGS

A. Studs and track shall have product markings stamped on the web of the section. The markings shall be repeated throughout the length of the member at a maximum spacing of 4 feet on center and shall be legible and easily read. The product marking shall include the following:

1. An ICBO number.
2. Manufacturer's identification.
3. Minimum delivered uncoated steel thickness.
4. Protective coating designator.
5. Minimum yield strength.

2.3 CONNECTIONS

A. Screws for steel-to-steel connections shall be self-drilling tapping in compliance with SAE J78 of the type, size and location as shown on the drawings. Electroplated screws shall have a Type II coating in accordance with ASTM B 633. Screws, bolts, and anchors shall be hot-dipped galvanized in accordance with ASTM A 123/A 123M or ASTM A 153/A 153M as appropriate. Screws bolts, and anchors shall be hot dipped galvanized in accordance with ASTM A 123/A 123M or ASTM A 153/A 153M as appropriate.

PART 3 EXECUTION

3.1 FASTENING

A. Fasten framing members together using self-drilling, self tapping screws of size, type, and location as shown on the drawings. Screw penetration through joined materials shall not be less than three exposed threads. Minimum spacings and edge distances for screws shall be as specified in AISI SG02-1. **Screws covered by the exterior wall panel materials shall have low profile heads.**

Table for Screw Sizes Steel-Steel Connections

Steel – Steel total thickness (inches)	Point Size	Minimum Screw Size
0.110" to 0.175"	#3	#10
0.110" to 0.210"	#3	#12
0.110" to 0.220"	#3	¼"
0.175" to 0.250"	#4	#12
0.175" to 0.250"	#4	¼"
0.250" to 0.500"	#5	#12

B. Anchors shall be of the type, size, and location as shown on the drawings.

3.2 INSTALLATION

A. Tracks

1. Provide accurately aligned runners at top and bottom of partitions. Anchor tracks as indicated in drawings. Butt weld joints in tracks or splice with stud inserts. Fasteners shall be at least 3 inches from the edge of concrete slabs.

B. Studs

1. Cut studs square and set with firm bearing against webs of top and bottom tracks. Position studs vertically in tracks and space as indicated on the drawings. Do not splice studs. Provide at least two studs at jambs of doors and other openings 2 feet wide or larger. Provide jack studs over openings, as necessary, to maintain indicated stud spacing. Provide tripled studs at corners, positioned to receive exterior wall covering. Fasten studs to top and bottom tracks by screwing both flanges to the tracks. For details where studs are connected to track with clip angles, fasteners to flanges **shall not** be substituted. Framed wall openings shall include headers and supporting components highlighted in the framing shop drawings. Provide horizontal bracing as shown on the drawings using cold-rolled channels inserted through the cutouts in the web of each stud and secured to studs with clip angles as shown on the drawings.

C. Erection Tolerances

1. Framing members which will be supporting the composite metal wall panel system must meet/exceed the manufacturer's requirements.

*** END OF SECTION ***

SECTION 07160

BITUMINOUS DAMPPROOFING

PART 1 GENERAL

1.1 APPLICABLE PUBLICATIONS:

A. The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only. The latest issue of the publications shall be used.

1. U.S. Department of Labor, Occupational Safety and Health Administration (OSHA) Standard:
   a. 29 CFR 1910 - Safety and Health Standards.

2. American Society for Testing and Materials (ASTM) Publications:
   a. D41 - Asphalt Primer Used in Roofing, Dampproofing and Waterproofing.
   b. D224 - Smooth-surfaced Asphalt Roll Roofing (Organic Felt.
   c. D226 - Asphalt Saturated Organic Felt Used in Roofing and Waterproofing.
   d. D227 - Coal-Tar-Saturated Organic Felt used in Roofing and Waterproofing.
   e. D449 - Asphalt Used in Dampproofing and Waterproofing.
   f. D1668 - Glass Fabrics (Woven and Treated) for Roofing and Waterproofing.
   g. D4263 - Indicating Moisture in Concrete by the Plastic Sheet Method.

1.2 SUBMITTALS:

A. Provide submittals in accordance with DIVISION 1 requirements certificates of performance.

1. Asphalt primer.
2. Type 1 asphalt.
3. Saturated felt.

1.3 DELIVERY AND STORAGE:

A. Deliver materials in sealed containers bearing the manufacturer's original labels. Labels shall include the date of manufacture and the recommended shelf life.

1.4 SAFETY AND HEALTH REQUIREMENTS:

A. The Contractor shall conform to all OSHA and General Industry Health Standards as well as applicable state and local standards.

PART 2 - PRODUCTS

A. Materials shall be consistent with industry standards and delivered new in uniform quality in approved containers.

1. Asphalt Primer
2. Type 1 Asphalt, ASTM D449
3. Saturated Felts, ASTM D226, Asphalt Saturated, Type 1, (15 pound); ASTM D227, Coal-Tar Saturated.
4. Glass Fabric. Woven glass fabric, treated with asphalt, complying with ASTM D1668, Type I..

PART 3 - EXECUTION

3.1 SURFACE PREPARATION:

A. Clean concrete surfaces to receive dampproofing of foreign matter and loose particles. Apply dampproofing to clean dry surfaces. Moisture test in accordance with ASTM D4263. If test indicates moisture, allow a minimum of 7 additional days after test completion for curing. If moisture still exists, redo the test until substrate is dry.

3.2 APPLICATION:

A. Use cold-application method. Apply dampproofing after the priming coat is dry, but prior to any deterioration of the primed surface, and when the ambient temperature is above 40°F. Dampproofing to be applied to the joint between the outside face of new concrete curb and the existing exterior masonry wall, and as shown in the Drawings.

1. Surface Priming: Prime surfaces to receive fibrous asphalt dampproofing with a coat of asphalt primer. Apply priming coat when the ambient temperature is above 40°F and at a rate of approximately one gallon per 100 square feet, fully covering the entire surface to be dampproofed.
2. Cold-Application Method: Apply two coats of asphalt to surfaces to be dampproofed. Apply each coat uniformly using not less than one gallon of asphalt per 50 square feet. Apply the first coat by brush to provide full bond with the primed surface, and brush or spray the second coat over a thoroughly dry first coat. Provide a finished surface that is of uniform thickness and impervious to moisture. Recoat porous areas.

*** END OF SECTION ***

SECTION 07410

WALL PANEL SYSTEM

PART 1 GENERAL

1.1 DESCRIPTION OF WORK

A. Steel faced, pre-finished, foamed-in-place, insulating composite wall panels with double interlocking side joints, integral vapor seals, and concealed structural fastening.

B. Metal and extruded trim, accessories, fasteners, and sealants related to the wall panel system.

1.2 QUALITY ASSURANCE

A. Manufacturer shall demonstrate a minimum of five years experience in the specified products and applications and submit projects with contacts and phone numbers that the architect and contractor can use to confirm satisfactory performance.

1.3 SUBSTITUTIONS

A. Materials, accessories, testing, and processes specified should establish the minimum level of quality, performance, dimension, and appearance required of any substitution.

B. Proposed substitutions shall include a complete description of the proposed substitute including testing, samples, and other information necessary to demonstrate the equivalency of the substitute.

1.4 PANEL PERFORMANCE TESTING

A. Structural designs shall have been established from tests per ASTM E72 chamber method. Ultimate loads shall be established without the use of exposed or back-side fastening.

B. Thermal transmission performance shall have been established from tests per ASTM C236 including panel joints and corrected to 15 mph wind outside and still air inside.

C. Air infiltration shall not exceed .03 cfm per square foot when tested at a static pressure of 1.56 psf (equivalent to 25 MPH wind) per ASTM 283-73.

D. There shall be no uncontrolled water penetration in accordance with ASTM E1646.

E. There shall be no evidence of delamination when the panels are tested by simulating two million cycles of positive and negative deflection to L/180.

F. All performance testing shall have been witnessed or conducted by independent agencies and included with manufacturer's literature submittal.

1.5 BUILDING CODE ACCEPTANCE

A. Wall panel system shall comply with requirements for foam plastics and finished panel performance as established by the applicable building code. Laboratory and full scale testing including, but not limited to, the following shall be available.

1. Foam core and interior surface of the complete panel system shall demonstrate compliance with the following criteria for surface burning characteristics per UL Standard 723 (ASTM E84).
   Flame spread – 25* or less
   Smoke developed – 450 or less

   * Numerical flame spread ratings are not intended to reflect hazards presented by these materials under actual fire conditions.

2. Wall panel units shall be classified as a component of fire resistant non-load bearing construction per UL Standard 263.

3. Wall panel units shall be approved as a Class 1 insulated wall or ceiling panel per FM Standard 4880.

4. Ignition temperature testing of the foam plastic insulation shall have been established per ASTM D1929.

1.6 WARRANTY

A. Manufacturer shall warrant for a period of one year that panels, trim, and accessories furnished by the manufacturer will be free from defects in material and factory workmanship.

B. Paint finish warranties shall be the paint manufacturers standard for wall panels and trim.

C. Exterior finish shall carry a 20 year warranty backed by the supplier. Versacor Plus ® or approved equal.

1.7 SUBMITTALS

A. General: Provide submittals in accordance with technical specification section 01330 Submittal Procedures requirements.

B. Manufacturer's Data: Catalog cuts, technical data sheets and descriptive literatures for the following:

1. Panels
2. Accessories
3. Fasteners
4. Color Sets for FAA color selection

C. Required Shop Drawings

1. Panel and fastener layout
2. Typical Joint
3. Typical Corner Installation
4. Supports
5. Anchorage
6. Trim
7. Flashing
8. Closures
9. Window and Lintel Layout
10. Roof Intersection
11. Ground Level
12. Front Entrance Canopy
13. Rain Spouts and Collection Box
14. West Entrance Canopy and Enclosed Area
15. West Main Conduit Run
16. Typical Penetration
17. Typical Door
18. Typical Wall Installation

D. Color Samples: Three (3"x5") samples of the color approved by FAA COTR from the manufacturer's standard range of colors.

E. Certified Test Reports for Formability Test, Weathering Test, Chalking Resistance, Specular Gloss, Abrasion Resistance Test for Color Coating, Humidity Test, and Fading Test.

F. Certificates of Compliance: Submit certificates from the manufacturers attesting that materials meet the specified requirements.

PART 2 PRODUCTS

2.1 PANEL DESIGN

A. Panel units shall consist of roll formed steel face and liner elements chemically bonded to a continuously foamed-in-place urethane modified isocyanurate core.

B. Panel edges shall be double tongue and groove design with factory applied vapor seal. Structural fasteners and clips shall be concealed within the side joint, mechanically engage both face and liner elements and be designed to prevent crushing of the foam core during fastener installation.

C. Panel unit shall be:

1. "Versawall 2.00" or approved equal, in 30" and 36" *modules* with a tested U value of .068 BTU/hr-sq.ft.-°F.

2.2 MATERIALS AND FINISHES

A. Panel exterior skin shall be:

1. ASTM A653, Grade 37, G90 galvanized steel in non-directionally embossed and planked in 20 gage.

B. Panel interior skin shall be:

1. ASTM A653, Grade 37, G90 galvanized steel, non-directionally embossed and planked in 20 gage.

C. Panel exterior finish shall be selected from one of the following in manufacturer's standard color for that finish.

1. "VERSACOR PLUS" or approved equal., consisting of a 0.2 mil Epoxy primer with a 2.7 mil "Versacor"-or equal, Epoxy Barrier Coat, and a 1.5 mil Urethane Coat. Color shall be determined through Submittal Process.

D. Panel interior finish shall consist of a 0.2 mil primer with a 0.6 mil polyester coating in manufacturer's standard color.

E. Urethane modified isocyanurate core shall be poured in place between the steel face and liner to fill all voids in the panel and have the following minimum physical properties:

1. Density – 2.7 pcf
   Shear stress – 20 psi
   Compressive strength – 20 psi
   Tensile strength – 20 psi

2.3 FABRICATION

A. Strippable plastic film shall be used to protect the exterior finish through all stages of roll forming and fabrication.

B. Steel trim shall be the same finish and gage as the exterior and/or interior of the panels.

C. Panels and trim bundles shall be protected with water resistant materials during shipping and storage.

PART 3 EXECUTION

3.1 INSPECTION

A. Building tolerances on the panel support steel shall not exceed those established by the panel manufacturer.

1. 3/8 inch in any 20 foot length vertically or horizontally.

2. ¾ inch in any building elevation.

B. Alignment of the panel support system should be checked and defects corrected prior to installing panels.

3.2 INSTALLATION

A. Panel erector shall demonstrate at least five years of experience installing similar products and applications.

B. Panels, trim, accessories, and sealants shall be installed in accordance with approved shop drawings to insure a functional and weather tight installation.

C. Strippable film shall be removed and dry wipe-down of the exterior surface done as the panels are installed.

*** END OF SECTION ***

SECTION 07920

SILICONE WEATHERPROOFING SEALANT

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes one-component, low-modulus, neutral-cure silicone sealant for general glazing and above-grade weathersealing in curtainwalls and building facades for both new and remedial construction.

1.2 REFERENCES

A. American Society for Testing and Materials (ASTM):

1. ASTM C679 - Standard Test Method for Tack-Free Time of Elastomeric Sealants.
2. ASTM C920 - Elastomeric Joint Sealants.
3. ASTM C1135 - Standard Test Method for Determining Tensile Adhesion Properties of Structural Sealants.
4. ASTM C1193 - Standard Guide for Use of Joint Sealants.
5. ASTM C1330 - Cylindrical Sealant Backing for Use with Cold Liquid Applied Sealants.
6. ASTM D2202 - Standard Test Method for Slump of Sealants.
7. ASTM D2240 - Rubber Property Durometer Hardness.

B. Government Services Administration (GSA), Commercial Item Descriptions (CID):

1. GSA CID A-A-272A - Sealing Compound: Silicone Rubber Base (For Caulking, Sealing, and Glazing in Buildings and Other Structures).
2. GSA CID A-A-1556 -Sealing Compound Elastomeric Type, Single Component (For Caulking, Sealing, and Glazing in Buildings and Other Structures).

1.3 SUBMITTALS

A. Provide in accordance with Section 01330 - Submittal Procedures:

1. Product data for silicone sealant, primer, joint backing, and other accessories. Include material safety data sheets (MSDSs) and certifications showing compliance with specified standards.

2. Shop drawings detailing sealant joints and indicating joint dimensions, materials, sealant profile, and size limitations.

3. Manufacturer's color chart for selection by COTR.

4. Manufacturer's instructions for installation and field quality control testing.

5. Copy of warranties specified in Paragraph 1.5 for review by COTR.

1.4 PROJECT CONDITIONS

A. Do not install silicone sealant during inclement weather or when such conditions are expected. Allow wet surfaces to dry.

B. Do not install sealant when temperature is less than 5 degrees F below dew point.

1.5 WARRANTY

A. Provide under provisions of Section 01780 - Closeout Submittals:

1. Installer's 5-year workmanship warranty.

2. Manufacturer's 20-year material warranty for properly installed silicone sealant.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Dow Corning Corporation, P.O. Box 994, Midland, MI 48686-0994; (800) 248-2481; www.dowcorning.com/construction.

B. Requests to use equivalent products of other manufacturers shall be submitted in accordance with Section 01330 - Submittal Procedures.

2.2 SEALANT

A. Type: One-component, low-modulus, neutral-cure silicone sealant for general glazing and above-grade weathersealing in curtainwalls and building facades; *Dow Corning*® 791 Silicone Weatherproofing Sealant, as manufactured by Dow Corning Corporation. Or approved equal.

B. Compliance: Sealant shall meet or exceed requirements of these standards.

1. ASTM C920, Type S, Grade NS, Class 50, Use NT, G, M, and A.

2. GSA CID A-A-272A.

3. GSA CID A-A-1556.

C. Color: tbd.

D. Shelf life: 12 months.

E. Application temperature range: Minus 20 to plus 122 degrees F.

F. Tack-free time: 35 minutes, tested in accordance with ASTM C679.

G. Working time: 15 minutes.

H. Curing time: 7 to 14 days for 3/8-inch depth joint.

I. Flow, sag, or slump: None, tested in accordance with ASTM D2202.

J. Volatile organic compound (VOC) content: 46 grams/liter.

K. Cured sealant properties after 21 days at 73 degrees F and 50 percent relative humidity.

1. Joint movement capability: Plus and minus 50 percent, tested in accordance with ASTM C719.

2. Hardness: 30-durometer hardness, Shore A, tested in accordance with ASTM D2240.

3. Properties, tested in accordance with ASTM D412:

a. Ultimate tensile strength: 120 psi.

b. Ultimate elongation: 460 percent.

4. Properties, tested in accordance with ASTM C1135:

a. Tensile/modulus at 25 percent extension: 40 psi.

b. Tensile/modulus at 50 percent extension: 60 psi.

c. Tensile modulus at 100 percent extension: 70 psi.

5. Minimum peel strength: 20 ppi, tested in accordance with ASTM C794.

2.3 ACCESSORIES

A. Substrate primer: As recommended for project conditions and provided by silicone sealant manufacturer.

B. Sealant backing: Provide backing complying with ASTM C1330 Type O open-cell polyurethane or as recommended by sealant manufacturer.

1. Size: Greater than joint opening by 25 percent minimum.

C. Bond breaker tape: Provide tape to prevent adhesion to joint fillers or joint surfaces at back of joint and allow sealant movement.

1. Type: Polyethylene or other plastic tape recommended by sealant manufacturer.

PART 3 - EXECUTION

3.1 GENERAL

A. Prepare substrates and apply silicone sealant in accordance with manufacturer's instructions.

B. Handle, store, and apply materials in compliance with applicable regulations and material safety data sheets (MSDSs).

C. Do not use silicone sealant for:

1. Below-grade applications.

2. Surfaces to be immersed in water for prolonged time.

3. Materials bleeding oils, plasticizers, and solvents.

4. Partially vulcanized rubber gaskets and tapes.

5. Medical and pharmaceutical applications.

D. Do not apply in totally confined spaces without ventilation for curing.

3.2 PREPARATION

A. Inspect existing joints to be repaired and new substrates to receive silicone sealant. Ensure surfaces are clean, dry, and free of frost, dust, dirt, grease, oil, curing compounds, form release agents, laitance, efflorescence, mildew, and previous films and coatings.

B. Remove existing joint sealant materials. Clean joints and remove joint sealant residue.Repair deteriorated or damaged substrates as recommended by silicone sealant manufacturer to provide suitable substrate. Allow patching materials to cure.

C. Clean substrates to receive silicone sealant.

1. Porous surfaces: Abrasive-clean followed by blasting with oil-free compressed air.

2. Nonporous surfaces: Use two-cloth solvent wipe in accordance with ASTM C1193.

3. High-pressure water cleaning: Exercise care that water does not enter through failed joints.

D. Adhesion test: Apply silicone sealant to small area and perform adhesion test in accordance with ASTM C1193, Method A, to determine if primer is required to achieve adequate adhesion. If necessary, apply primer at rate and in accordance with manufacturer's instructions. Allow primer to dry.

E. Masking: Apply masking tape as required to protect adjacent surfaces and to ensure straight bead line and facilitate cleaning.

3.3 APPLICATION

A. Sealant backing: Install without gaps, twisting, stretching, or puncturing backing material. Use gage to ensure uniform depth to achieve correct profile, coverage, and performance.

B. Bond breaker: Install on backside of joint where backing is not feasible.

C. Sealant:

1. Use sealant-dispensing equipment to push sealant bead into opening. Fill joint opening to full and proper configuration. Apply in continuous operation.

2. Before skinning or curing begins, tool sealant with metal spatula. Provide concave, smooth, uniform, sealant finish. Eliminate air pockets and ensure complete contact on both sides of joint opening. Tool joints in one continuous stroke.

D. Complete horizontal joints prior to vertical joints. Lap vertical sealant over horizontal joints.

E. Cleaning: Remove masking tape and excess sealant.

3.4 FIELD QUALITY CONTROL

A. Perform adhesion tests in accordance with manufacturer's instructions and ASTM C1193, Method A, Field-Applied Sealant Joint Hand-Pull Tab.

1. Perform 1 test for each application of applied silicone sealant.

2. For sealants applied between dissimilar materials, test both sides of joint.

B. Sealants failing adhesion test shall be removed, substrates cleaned, sealants re-installed, and re-testing performed.

C. Maintain test log and submit report to Architect indicating tests, locations, dates, results, and remedial actions.

END OF SECTION

SECTION 08305

ACCESS DOORS

PART 1 –GENERAL

1.1 SUMMARY

A. Provide access panel frames/doors to fit the configuration and type of construction at a given drawing locations.

1.2 EXERIOR WALL ACCESS DOORS:

A. Provide metal access doors for mounting in metal stud and metal exterior wall panels, locations as shown in the Drawings. Sizes to be 4" in either direction larger than the component providing access to. Exposed face of doors and flanges shall be shop- painted to match new exterior wall panels.

1. Exterior access doors and frames shall be minimum 14 gage, galvanized steel construction.
2. Doors shall be fitted with flush-mounted, keyless paddle latches.
3. Door openings shall be fitted with continuous neoprene gaskets to prevent ingress of moisture and flanges continuously sealed with silicone joint sealant.
4. Access door frames shall be flush mounted to exterior walls, with minimum 1" flanges on the outside, all around.
5. Doors shall be set with continuous, concealed piano-type hinges.
6. Frames shall be secured directly to 16 gage stud framing and exterior wall panels with a minimum 2 - #10 metal-metal fasteners at each corner plus 4- # 10 fasteners per each additional square foot access door area, or fraction thereof. Additional trim, galvanized strapping, fasteners, etc, shall be considered incidental to complete the installations.

1.3 FABRICATION AND WORKMANSHIP:

A. Finished doors and frames shall be strong and rigid, neat in appearance, and free from defects, waves, scratches, cuts, dents, ridges, holes, warp, and buckle. Molded members shall be clean cut, straight, and true, with joints coped or mitered, well formed, and in true alignment. Dress exposed welded and soldered joints smooth. Design door frame sections for use with the wall or ceiling construction indicated. Corner joints shall be well formed and in true alignment. Conceal fastenings where practicable.

B. Known manufacturers:

1. Babcock-Davis
2. Karp

3. J. Lind Industries
4. Nystrom

*** END OF SECTION ***

SECTION 13106

PREFABRICATED ENTRANCE VESTIBULE

PART 1 GENERAL

1.1 SUMMARY:

A. This section covers the requirements for replacement of the shelter entrance on the west elevation of the Tracon Building. The vestibule shall have one face permanently connected to the south entrance on the west elevation of the building as indicated on the drawings. The shelter shall be of heavy gage steel construction, fully glazed, with a fully glazed, swing door. The floor shall be concrete as indicated on the drawings and the shelter shall be mechanically anchored to it. Exterior color shall match the new composite exterior wall panels of the building.

1.2 SUBMITTALS:

A. Provide submittals in accordance with Section 01330 requirements.

1. Manufacturer's literature, Color Charts, Installation Instructions
2. Shop Drawings
3. Hardware

1.3 DELIVERY AND STORAGE:

A. Deliver vestibule shelter components in factory fabricated packaging/shipping containers. Protect from damage due to the weather, dirt, fumes, water, personnel, construction debris and equipment. Do not install damaged components. Do not install damaged components; remove any damaged components from site and replace with new.

1.4 FABRICATION, WORKMANSHIP AND INSTALLATION:

A. Finished vestibule shelter shall be strong and rigid, neat in appearance, and free from defects, scratches, cuts, dents, holes, etc. Caulk and seal joints to Tracon Building to protect interior from weather. Install per manufacturer's instructions.

PART 2 - PRODUCTS

A. Known manufacturers/distributors of vestibule shelters:

1. Big Enterprises, Inc.
2. Porta-King, Inc.
3. ShelterDirect

*** END OF SECTION ***

SECTION 16512

EXTERIOR LIGHTING FIXTURES

PART 1 GENERAL

1.1 SUMMARY:

A. This Section specifies exterior lighting fixture work as indicated by drawings and as specified herein. Types of exterior lighting fixtures in this Section include the following:

1. High-intensity discharge (HID).
   a. Metal halide (MH).
   b. High pressure sodium (HPS).

B. Applications of exterior lighting fixtures required for this Project include the following:

1. Outdoor area lighting.

1.2 REFERENCES:

A. Applicable Standards: Comply with applicable requirements of the following standards.

1. Certified Ballast Manufacturers Association (CBMA): Provide fluorescent lamp ballasts which comply with Certified Ballast Manufacturers Association and carry the CBMA label.

2. National Electrical Manufacturers' Association (NEMA): Comply with applicable requirements of NEMA Stds Pub/No. LE2 pertaining to lighting equipment.

3. National Fire Protection Association (NFPA):
   a. 70 - National Electrical Code (NEC). Comply with applicable local code requirements of the authority having jurisdiction and the NEC.
   b. 780 - Lightning Protection Code. Comply with applicable requirements pertaining to installation of exterior lighting fixtures.

4. Underwriters Laboratories (UL): Provide exterior lighting fixtures and components which are UL listed and labeled. Comply with applicable requirements of the following standards:

   a. 57 - Electric Lighting Fixtures.
   b. 506 - Specialty Transformers.
   c. 542 - Lampholders, Starters, and Starter Holders for Fluorescent Lamps.
   d. 1029 - High-Intensity-Discharge Lamp Ballasts.
   e. 1572 - High-Intensity-Discharge Lighting Fixtures.

1.3 SUBMITTALS:

A. Refer to Section 01330 for administrative and procedural requirements for Submittals. Includes, but not limited to, the following:

1. Product Data: Submit manufacturer's product data and installation and maintenance instructions on each type of exterior building lighting fixture.

1.4 DELIVERY, STORAGE, AND HANDLING:

A. Deliver exterior lighting fixtures in factory-fabricated containers or wrappings which properly protect fixtures from construction debris and physical damage. Store exterior fixtures in original wrappings in a clean dry space. Protect from weather, dirt, fumes, water, construction debris, and damage. Handle exterior lighting fixtures carefully to prevent damage, breaking, and scoring. Do not install damaged fixtures or components; remove units from Site and replace with new.

1.5 SEQUENCING AND SCHEDULING:

A. Sequence exterior lighting installation with other work to reduce possibility of damage and soiling of fixtures during the remainder of construction period.

PART 2 PRODUCTS

2.1 MANUFACTURERS:

A. Subject to compliance with requirements, provide products of one of the following for each type of exterior lighting fixture:

1. Exterior Lighting Fixtures:
   a. Beta Lighting
   b. Crouse-Hinds Lighting Products Div; Cooper Industries Inc.
   c. Esco Lighting, Inc.
   d. Lithonia Lighting Div; National Services Industries, Inc.
   e. Cooper Lighting.

2.2 EXTERIOR LIGHTING FIXTURES:

A. General: Provide "Wall-Pack" type lighting fixtures of sizes, types, and ratings indicated; complete with, but not limited to, housings, high power factor ballasts, energy efficient ballasts, supports, lamps, starters, and wiring. All equipment and materials shall bear the UL label and be certified for wet locations. Fixtures shall be fabricated of die-cast aluminum housings and finished with corrosion resistant "Bronze" finish.

B. Fixture Schedule

	Drawing & Location	Exterior Equipment Schedule Number	Approx. Size	Light Projection	Wattage	Orientation
1	A111, South Elevation	4	16" square	Full Cutoff	400	Vertical
2	A111, South Elevation	11	12" square	Projection Cutoff	100-150	Horizontal
3	A111, South Elevation	12	6"x 10"	Deep/ Full Shielding	100-150	Horizontal
4	A111, South Elevation	23	12"-16" square	Perimeter Cutoff	175-250	Horizontal
5	A112, South Elevation	4	16" square	Forward throw	400	Vertical
6	A113, North Elevation	10	12" square	Projection Cutoff	100	Horizontal
7	A113, North Elevation	20	12" square	Projection Cutoff	100	Horizontal
8	A114, West Elevation	10	12" square	Projection Cutoff	100	Horizontal
9	A114, West Elevation	21	6"x 10	Deep/ Full Shielding	100-150	Horizontal
10	A114, West Elevation	23	16" square	Full Cutoff	400	Vertical

PART 3 EXECUTION

3.1 EXAMINATION:

A. Examine areas and conditions under which lighting fixtures are to be installed and provide secure support for lighting fixtures.

3.2 INSTALLATION OF EXTERIOR LIGHTING FIXTURES:

A. Install exterior lighting fixtures at locations and heights as indicated, in accordance with fixture manufacturer's written instructions, applicable requirements of NEC, NECA's "Standard of Installation," NEMA standards, and with recognized industry practices to ensure that lighting fixtures fulfill requirements.

B. Tighten connectors and terminals, including screws and bolts, in accordance with equipment manufacturer's published torque tightening values for equipment connectors. Where manufacturer's torquing requirements are not indicated, tighten connectors and terminals to comply with tightening torques specified in UL 486A and the National Electrical Code.

C. Fasten electrical lighting fixtures and brackets securely to structural supports, including poles/standards; ensure that installed fixtures are plumb and level.

D. All exterior lighting shall be demonstrated during night-time tests.

1. All light fixtures which can be aimed (floodlights, etc.) shall be aimed as indicated and shall be re-aimed as directed by Engineer during night time lighting demonstrations. Redemonstrate lighting at night after all adjustments have been made.

3.3 GROUNDING:

A. Provide equipment grounding connections for exterior lighting fixtures as indicated. Tighten connections to comply with tightening torques specified in UL 486A to assure permanent and effective grounds.

3.4 FIELD QUALITY CONTROL:

A. At the Date of Substantial Completion, replace defective and burned out lamps in exterior lighting fixtures or which are observed to be noticeably dimmed after Contractor's use and testing as judged by Engineer.

3.5 ADJUSTING AND CLEANING:

A. Verify that illuminance and photo sensors meet manufacturers specifications . Clean lighting fixtures of dirt and debris upon completion of installation. Protect installed fixtures from damage during construction period.

3.6 DEMONSTRATION:

A. Upon completion of installation of exterior lighting fixtures and associated electrical supply circuitry, apply electrical power to circuitry to demonstrate capability and compliance with requirements. All exterior lighting demonstrations shall be performed at night.

*** END OF SECTION ***